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Original Articles

INSTRUMENTAL METHODS FOR THE STUDY OF HUMAN PHYSIOLOGY AND THEIR RELATION TO EXPERIMENTAL MEDICINE.*

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I have lately been reading with great pleasure an article by Lewellys F. Barker, entitled "An Intersemestral Excursion" (*Jour. of the Amer. Med. Assoc.*, xliv., 1905, p. 493 and 734). Although a clinician, he is evidently greatly interested in Physiology. He says: "Physiology stands closer, perhaps, than any of the other so-called fundamental sciences to the practising physician, to whom its relation is that of anatomy to the surgeon." I sometimes wonder whether this opinion is shared by most physicians. I have more than once heard physicians say, "I know nothing about physiology," although it seems to me that they can never examine a case without studying the physiology of the patient. I fancy that the physiology of the sick room, although still physiology, goes by another name.

It is true, however, that the methods of the modern physiological laboratory are strange to most of the older physicians, because many of these methods have been developed within comparatively a few years, and they cannot be acquired by merely reading. There were no physiological laboratories even in New York city as late as 1885. The first and for a number of years the only physiological laboratories in this country, dealing with the physical problems of physiology, were Bowditch's laboratory at Harvard, and that of Martin at Johns Hopkins. Now we find well equipped laboratories in all of the best medical schools, and in many of them the students are required to take practical laboratory courses in physiology.

Barker would like to see connected with our medical schools a chair of "Pathological Physiology" or "Observational and Experimental Medicine." He says that there are two reasons why it is desirable: 1. That the influence of clinical work on human beings should be felt in the experimental laboratory. 2. That men trained on the experimental side should be brought to the bed-side.

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There are three such chairs in Austria: in Vienna, Innsbrueck, and Prague, and it is expected that one may be developed in Berlin.

Dock has been doing such work with limited facilities, for a number of years at Ann Arbor, and certainly there will be a strong department of the kind in the University of Michigan as soon as it can be brought about. It is not unlikely that under the influence of Barker such a department will be set on foot at Johns Hopkins.

There ought to be in a medical center such as Detroit a well equipped experimental laboratory with a few hospital rooms attached, where patients could be sent for examination by experts, or where a physician, if acquainted with laboratory methods might go and with the aid of the experts in charge carry on the necessary work. But it may be asked:

"Are not the present methods of physical diagnosis sufficient? They are crude and incomplete. They are almost entirely qualitative, and are such as would not be tolerated in any exact scientific research. Medicine does not claim to be an exact science, but it ought at least to become far more exact than it is. In all forms of scientific work the personal equation of the observer should be as far as possible excluded. Yet in our present methods the physician depends almost wholly on what he sees, feels and hears, and his own condition at the time intrudes itself into every stage of the work.

It is astonishing how much the physician can learn concerning the condition of the patient in spite of the fact that he is forced to work as he does. Suppose there was something wrong in an electric power plant; the furnaces were not supplying enough energy, the dynamos were not working properly, or something was out of order, just what was uncertain. Suppose that an expert was called upon to tell what was the matter, but was told that he could not go into the building; that he could analyze the coal that went in and the ashes and gases that were given off, that he could test the amount of energy leaving the building as heat and electricity; that he could inspect the outside walls and even put his ear to the wall and listen to the machinery but that he must not go inside. Do you think he would want the job? Such is practically the position of the physician when he is called on to diagnose a case. It is true that the physician can question his patient concerning his sensations, but this is much as if the electric expert asked a stupid engineer what peculiarities the dynamo showed. The answer in either case might be more misleading than instructive. If one is to work under these disadvantages he must certainly employ every available means of ascertaining the condition of the patient.

A large part of the vital activities of the body occur without any external evidence of a type to be detected by the unaided sense organs. We have been forced to form our judgment from a few data, and to draw our conclusions from the facts learned in the autopsy room from previous cases and the information gained by the study of similar processes in animals. Human physiology in the past has been largely animal physiology carried over to men. With the development of new forms of physical apparatus and new methods of physical examination of the human body, we are, however, beginning to obtain fairly exact information concerning the functional activities of the

bodies of men, and the time will come when a book on human physiology can be written.

It was such considerations which made me ask myself what methods has the physiologist today to offer to the physician to aid him in his diagnosis? What instruments and methods for studying human physiology exist, and which of them have been sufficiently perfected to give reliable results? Of instruments and methods there are a multitude which have proved of value in the study of the physiology of the lower forms, and many of these can undoubtedly be adapted to the study of human physiology. I shall weary you with the list, in spite of the fact that I shall cut out a large number of those with which you, as practising physicians, are familiar, for example, the methods employed to measure existing, and relatively stable conditions—e. g., height, girth, form, structure, weight, and temperature; the chemical, histological and bacteriological methods of determining the condition of the various fluids and gases of the body; methods for studying the metabolism of the body, the calorimetric method which has been brought to such perfection by Atwater; the various methods for stimulating sense organs, nerves and muscles to action, and of testing their capacity to respond to appropriate stimuli.

Passing over all these, there is another class of methods which is being rapidly perfected in physiological laboratories, but which has as yet been used but little by the physician. I refer to the graphic and allied methods employed in the study of the changes in the body produced by various forms of muscular activity. The contraction of the muscles which move the limbs, thorax and abdomen, of the heart muscle, and of the muscles in the walls of the blood vessels, etc., cause changes of position, form and volume of corresponding and even distant parts of the body, and lead to alterations of pressure in the fluids of the body, and often to production of sounds and changes in electrical condition. Many of these phenomena can be detected and measured with considerable accuracy. Not only may these changes be studied quantitatively, but the time relations of their occurrence may be ascertained to the thousandth of a second and so their interdependence be determined. Such a study to give exact results, requires the use of moving surfaces on which the movements may be recorded, apparatus for gauging the rate of movement of these surfaces, apparatus to measure the extent, strength, direction, and rate of the movements and the amount of the changes in pressure, volume, sound, and electrical condition. Many of these forms of apparatus and methods are most ingenious, and I wish that we were at the laboratory at the University so that I might demonstrate some of them to you.

The surfaces on which the records are taken are plates, moved by a pendulum, a spring, or a vibrating fork. Drums moved by hand, falling weights, clock work, or electric or water motors. The plates and drums are covered with paper, and the record is in ink, or the paper receives a coat of soot, which is scratched off by the writing point, the writing being fixed later by a coat of shellac.

The rate at which the surface moves, is recorded on it as it moves, by electromagnets, actuating levers, and magnetized at regular intervals from clocks, metronomes, vibrating reeds, or tuning forks, which make and break the electric circuit

at regular intervals. The time record is given for any desired amount from a second to five one-hundredths of a second.

The movements of the part to be studied may be recorded directly, by the part touching the surface, or indirectly by means of a great variety of writing mechanisms, e. g., myograph levers, or tambours which transmit the movement to a distance by air transmission. This latter method, in the hands of Marey, led to the construction of a great many mechanisms adapted to record special types of movement, the cardiograph, to record the apex impulse of the heart, the pneumograph, to record the respiratory movements of chest and abdomen, the sphygmograph to record the pulse, apparatus to record the movement of the limbs, of special muscles, of the larynx, etc. The instant that a movement occurs can also be recorded by letting it break an electric current passing through an electro-magnet. The strength of a movement may be recorded by some form of dynamometer, and the amount of work done and the endurance by an ergograph. The amount of pressure of a fluid can be recorded by a mercury or spring manometer, and lately a host of instruments have been devised for recording human blood pressure. They bear the names of their inventors, V. Basch, Mosso, Hill-Barnard, Oliver, Riva-Roci, Gaertner, Erlanger, Janeway, etc. I think Erlanger's is perhaps the best. (The latest form is described in the Johns Hopkins reports VII, 1904, and the same number contains an article by Erlanger and Hooker giving the results of their experiments on human blood pressures.)

Changes of volume of a part can be recorded by the plethysmograph, the part being placed in an air tight chamber, and the movement of the fluid or air in and out, as the volume changes, is recorded by a tambour, piston recorder, bellows recorder or gas tachygraph.

The use of the microphone allows the time of occurrence of sounds to be recorded. Thus Huertler connected a micriphone, placed on a man's chest over the heart, with an induction coil which stimulated a frog's muscle, which recorded its contraction and so the time of the sound on a myograph drum. A still better method is that of Einthoven, who used a microphone and a capillary electrometer to obtain a record of the sounds of the heart. A photograph of the movements of the column of mercury in the capillary revealed the complex elements which enter into the sound, and these were found to change under pathological conditions.

Every muscular movement, that of the heart for example, is accompanied by an electrical change, and this can be observed with the capillary electrometer, and can be recorded photographically.

Have I tired you with the catalogue? The list is by no means complete, but at least may serve to show that there are many ways of attacking the problems of human physiology, besides those employed by the practising physician.

But you will ask, "How many of these are practical, i. e., capable of being employed by the ordinary physician in his daily practice?" Certainly very few. All of this apparatus properly arranged can be made use of in studying the physiological activities of men, but at present the methods are incomplete and cumbersome. They are capable, however, of being developed into forms which will render important service to the physician. There is a big field of research open here, and one which will some day yield rich fruit.

Would it be of use to the physician if he could get infomation on such questions as the following:

The relative duration of the systole and diastole of the heart and how this is altered by exercise and other influences.

The changes in the character of the sounds of the heart which may occur under pathological conditions.

The time of the coming of the heart sounds with respect to the instant that the muscle contracts.

The character of respiratory movements, of the thorax and the abdomen.

The exact ratio of respiratory movements to heart rate, and the way the ratio changes under the influence of exercise.

Rate of progression of the pulse wave, as an indication of the condition of the arterial wall.

The exact character of the pressure waves in the artery, what we term the pulse.

The time relation of a venous pulse to heart action.

The influences which are most potent in a given patient to alter the blood pressure.

The capillary blood pressure in a part.

The condition of the central nervous system from the standpoint of overflows from one group of nerve cells to others, e. g., the reëforcements of the K. J.; the effect of reflex and psychic influences on the vaso-motors; the effect of the swallowing center (?) on the heart and respiratory centers; the effect of the respiratory center on the heart centers.

The capacity of the heart and vaso-motors to maintain the blood pressure under varying conditions, e. g., effect of position, exercise, etc.

Whether the normal crossed vaso-motor reflex to cold is exaggerated or decreased.

The time of a reflex act such as winking.

Reaction times to sights and sounds, so necessary in some trades.

The rate of discharge by the Anterior horn cells to the muscle by a voluntary act. How this is altered by fatigue, tremors.

The capacity of muscles and the central nervous system for long-continued muscular work.

The capacity of a subject to make rapid muscular movements.

The tonus of a muscle at a given time.

An adaptation of the experimental methods at present in use in our physiological laboratories would enable the physician to obtain valuable information on all these questions.

It is especially in those obscure cases diagnosed as functional disturbances, which means that the physician is unable to detect any lesion or any adequate cause for the difficulty, that laboratory methods should be brought in to help the diagnosis.

In a large majority of cases the physician must trust to the body to heal itself. He can help the work along, however, if he understands the physiological condition of the patient completely, and can bolster up the weak sides. More complete means of physical examination would supply information which would help him to do this. The family physician is often consulted with reference to the care of children, and whether, for example the boy or girl should be allowed to take vigorous physical exercise, and if so of what kind. I am afraid the answer is too often a common sense answer based on no very accurate knowledge of the condition of

the child. We know how to study people who are really sick, but we do not know how to study the condition of those who pass for well but who might have better health. That is what we must learn to do if we are to improve the breed.

The day will come when we shall be able to estimate the physiological and psychological character of the individual in a way that we do not even dream of. We have only just begun to study the physiology of men.

HISTORICAL SKETCH OF THE RADICAL MASTOID OPERATION.*

RAY CONNOR,
Detroit.

The study of the ear has been relatively late in arriving at any considerable dignity amongst the other branches of medical lore. It long rested in the hands of quacks alone. Sir Ashley Cooper having been so fortunate as to improve the hearing of a patient, soon had his consulting room crowded with the deaf and was obliged to drive them away lest his reputation suffer with his fellow practitioners. Only thirty years ago more than one famous surgeon was fond of saying "ear diseases may be divided into two classes: those which can be cured by any general practitioner and those which being incurable may be relegated to the tender mercies of the ear specialist." While the development has been all along the line, the two greatest achievements of otology have been in the way of preventing and curing deafness by attention to the nose and throat and in the care of suppurations of the middle ear and mastoid. It is with the last that we are especially concerned this evening.

As Stacke has well said: "Otology is an offshoot of surgery and only in close adherence to it and in true and conscientious observance of its principles is success to be sought for and to be found." The surgery of the temporal bone is peculiar only so far as its anatomy and relationships render it so. It has profited by the advances in general surgery due to the introduction of anesthetics and the principles of asepsis, and general surgeons have contributed largely to the development of the various procedures which have been applied to the treatment of suppuration in this region.

Curiously enough the opening of the mastoid was first suggested in 1649 by Riolanus as a cure for cases of occlusion of the eustachian tube. It was not, however, until about a century later that the bone was actually opened, and then for quite a different reason. Petit in 1750 opened the mastoid with a gouge and hammer for the evacuation of pus. At about the same time, Morand seems to have opened the mastoid and drained an intracranial abscess. Quite ignorant of this work in France, Jasser, a Prussian military surgeon, opened a carious mastoid with a probe. His ignorance of the anatomy is shown by his surprise that

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fluid injected into the sinus could come out of the nose. The patient was so gratified by the relief from intense pain obtained, and increased hearing that he insisted on having the other ear similarly treated as it had a chronic discharge and loss of function. This was then opened through a healthy cortex by a trochar and a good result obtained. The operation of Jasser became well known and bore his name. The indications were not understood and it seems to have been employed for a time rather indiscriminately to relieve deafness without otorrhœa. The physicians of that day gave rosy reports of their success as the hearing of some was restored and no harm seemed to result to any. In 1791, however, Berger, the King of Denmark's physician, suffering with impaired hearing and a very annoying tinnitus, prescribed the operation for himself. Through the lack of skill of his surgeon or anomaly of his temporal bone, the trochar penetrated the brain instead of the mastoid antrum and the patient died of meningitis in a few days. This closed the vogue of the operation for many years and it was not attempted again in more than half a century. In 1853, Wilde, the great Dublin aurist, whose name still clings to the incision made behind the ear for post auricular abscess, wrote, "as the success attending the procedure must be very doubtful and the hazard very great, it is never resorted to in the present day."

Toynbee, in his celebrated work on the ear in 1860, devotes six chapters to the consideration of the external auditory meatus and but one to the mastoid. This latter is chiefly devoted to the autopsy records of mastoid cases in which no operation was done and the patients died in consequence. Notwithstanding this he wrote in another place: "I have never performed this operation, but I should not scruple to do so in a case where the life of the patient was threatened."

The revival of the mastoid operation came from Germany, although isolated cases were reported in other countries. The mastoid was opened by mallet and gouge by Forget (1849), Billroth (1867) and Rouge (1869). In 1861, Troeltsch perforated the mastoid in a case of acute suppuration of the middle ear which an external Wilde's incision had failed to benefit greatly. Crosby amongst the mountains of New Hampshire opened up three mastoids with a gimlet in 1864 and obtained good results. In the same year Follin reported a successful case in France and Ludwig Mayer in Germany. It was really due to Schwartze of Halle that this procedure was established on its present firm footin. In 1873, he reported a series of 50 cases and four years later 50 more. The operation since then has deservedly borne his name. It was at first performed not only in acute and subacute cases but also in chronic ones and some good results were obtained even in these latter cases. It remains after thirty years as the treatment par excellence of acute mastoditis requiring operation.

The treatment of chronic suppurative otitis media has long been the subject for discussion. The relative importance of this physical sign has not been generally recognized either by the profession or the laity. Many physicians used to think as little of it as an attack of gonnorrhœa or a cold in the head. The appreciation of these so-called minor complaints is getting more and more general as the results of neglected cases are more carefully studied. A few men have long felt the danger of continued suppuration from the

ear. Wilde, in 1853, wrote: "So long as a discharge from the ear exists, we are never able to say, how, when, or where it may end nor to what it may lead." Troeltsch, a few years later, held that a person suffering from a chronic ear discharge should not be subjected to military duty, because he is exposed in the performance of this service to many injurious influences which may cause his life to be in danger. Those shrewd students of mortality records, the life insurance companies, have long held and still do that these cases are not good risks and can only be accepted at an increased premium. As is well known many persons go through life apparently little inconvenienced by the discharging ear they have had since childhood. On the other hand over 80 per cent. of brain abscesses are caused by infections from chronically discharging ears. The otological literature is filled with the reports of cases of intracranial involvement, sinus thrombosis, meningitis, cerebral and cerebellar abscesses arising from chronic otitis.

The treatment of chronic discharge from the middle ear is almost infinitely varied. Into the medicinal treatment, I will not go as the very multiplicity of methods prove conclusively that none are more than partially successful. A fair trial of several weeks or months should be given to the case providing no urgent symptoms are present. Should local treatment intelligently employed fail to relieve the case the question of operation should be carefully considered and presented as fairly as possible to the patient. One of the most important principles of bone surgery is to provide for free, unhindered and spontaneous drainage. This is peculiarly difficult to obtain with the cavities of the temporal bone. Thus theoretically the focus of infection should be removed in every case by surgical intervention if other means fail. fortunately certain of these chronic cases are fairly clear in their indications, but a much larger number have to be decided in accord with the experience of the individual operator and cannot be decided according to any fixed set of rules. Where acute symptoms of pus retention occur in chronic otitis media, the indications are absolute for surgical interference. The same is also true when brain symptoms become threatening, but the desirability of interfering before the brain becomes involved can hardly be overestimated. Cholesteatomata can only successfully be treated surgically. The radical operation should also precede operations on the brain for intracranial complications due to middle ear disease. The indications may be much less urgent and still call for operation. Thus the toxemia from a mastoid and middle ear infection may keep a patient in ill-health for years with very indefinite symptoms such as headache, dizziness, vertigo, nausea, gastro-intestinal symptoms, malaise and greatly impaired vigor which clear up completely after the source of infection is removed. Macewen has well compared chronic otitis with chronic appendicitis, although the one occurs in a functionless appendage and the other in a highly specialized sense organ. Both affections are pyogenic. Both are apt to invade neighboring tissues, the peritoneum and the intracranial structures. Both are insidious in their action and tend to undermine the health of the individual. Both tend to precipitate a sudden serious illness which is often fatal. In both an early and complete operation not only relieves the patient from the

depressing effects of the disease but at once removes the possibility of a sudden and fatal termination. In both many lulled into a sense of security by the apparent passivity of the disease and its long duration and arguing from the fact that as patients have recovered from one attack, they are equally likely to recover from another, postpone the operation until the peritoneum in the one case and the brain in the other become involved and a fatal termination is imminent, but then it may be too late to save the patient.

When operative interference has been decided upon some prefer to try an ossiculectomy before doing a radical operation. This has the advantage that it can be done through the meatus and so requires no external wound. The deprivation from work is also for a shorter time. On the other hand the work must be done in the dark as the attic cannot be seen and the curetting must be done blindly. One can never be sure that all the disease is removed. The practical test of experience does not bear out the hopes of earlier enthusiasts, as many of the cases come back little benefited by the procedure and requiring a more extended operation. It seems, however, to be of service in a small number of selected cases.

It was Küster of Berlin, in 1889, who first censured aural surgeons for doing their work in the dark and who dwelt on the necessity of free exposure of all the cavities of the middle ear during both operation and after treatment. Following out his line of thought, Zaufal and Stacke about the same time devised the radical operation which, with various modifications, has come to stay. The resulting operation is very much the same whether done according to either method as they each begin at the opposite end of the same job. Thus Stacke begins from the meatus and exposes the attic by removing its outer wall and part of the superior wall of the meatus. Then the aditus is exposed by the removal of the posterior superior wall of the meatus, and thus the antrum opened and cleaned out. Zaufal, on the other hand, goes into the antrum through the cortex and then exposes the aditus by removing the posterior superior wall of the meatus and the outer wall of the attic. The method of Stacke makes the finding of the mastoid antrum comparatively easy and prevents any injury to the lateral sinus arising from an anomalous position which is sometimes found. Zaufal's method, on the other hand, gives a freer exposure and makes the operation a more open one. The cutaneous incision is begun above and about one-half inch before the pinna and is continued in a curve about one-half inch behind the auricle to the mastoid tip. This is extended to the bone and the periosteum and other tissues stripped back until the meatus is well exposed. In his original operation, Stacke freed the cutaneous meatus and stripped the entire canal away from its bony wall. Later he, as well as Zaufal, found that it was sufficient to free the posterior and superior portions of the canal and to leave the anterior and usually the inferior still in place. The necessity of a good light for the rest of the operation cannot be overestimated as well as a good assistant to keep the field dry and free from blood and debrie. In this way the entire bone can be laid open for examination and all the disease seen and removed. It is in removing the bridge of bone over the aditus and antrum that the facial nerve is most likely to be

injured, although with a field well cleaned and illuminated it can readily be identified from its relationship to the external semicircular canal which shows its smooth and whitened structure above and a little behind the fallopian canal in which the nerve lies. The removal of the outer wall of the attic is necessary in order to bring the upper part of the meatus into the same plane as the tegmen tympani and so leave the entire attic open to inspection through the meatus. The object attained by the whole operation is the removal of all diseased tissue and the throwing the cavities of the tympanum, attic, aditus, and antrum into one large cavity which can be seen and treated through the meatus during the entire after treatment. More modifications have arisen in the treatment of the posterior wall of the cutaneous meatus than in any other one feature of the operation. In Stacke's first operations he merely slit the posterior wall and did not suture the post auricular wound. Panse proposed a method by which the posterior wound was immediately sutured and a tongue-shaped flap formed by two parallel incisions along the superior and inferior wall was kept in place by sutures. Körner some years later modified this by cutting into the cartillage of the concha so that the cartilagenous meatus was widened and a better access given to the field of operation for the after treatment. Others have resected portions of the cartillage so as to give even more room.

Perhaps the most important modifications in the last few years are those proposed by Ballance in the use of epithelial grafts in order to hasten the healing, which has been and still is very tedious. In his first communication, Ballance proposed the dividing of the operation into two portions, one to remove the disease and cure the suppuration and another to heal the wound of the first operation. An ordinary radical operation, according to Zaufal, is first done and the post auricular wound sutured. Then in adults at the end of 10 days to 3 weeks the posterior wound is reopened and the skin grafting done. The grafts are shaved from the arm or thigh and introduced into the bone cavity by the aid of section lifters. If possible one large graft is utilized to cover the entire surface desired, but where this is impossible, several smaller ones can be used, care being taken not to allow them to overlap. The blood and air have to be completely removed from under the graft in order to attain success, and the hemorrhage is one of the reasons why this procedure cannot be carried out at the time of the original operation. The grafts are then covered with gold leaf of great thinness and a strip of iodoform gauze is introduced into the meatus. The posterior wound is resutured. A week later the gauze is changed and 3 or 4 days later the gold leaf can be removed. The epithelial grafts shed their outer epithelium 2 or 3 times during healing. The results as to hearing do not seem to be improved by the grafts, but the quickness of recovery is accelerated provided the grafts take. They may serve to close the eustachian tube, but as this has lost its function, this is rather an advantage than otherwise. In his last communication, Ballance has changed his views somewhat as his experience with this operation has enlarged. He no longer lays such stress on the use of the electro-motor burr in the bone part of the operation, but combines with it the use of the gouge and mallet. While he believes the ideal operation should be completed in one sitting, yet under existing

circumstances he advises still another stage to the two already laid down. This consists in a careful removal of the main portion of the graft on the 3d to 6th day, leaving a delicate layer of epithelium behind. This is the more necessary the thicker the graft inserted. Instead of an average of 3 to 4 months, as is necessary without grafting, Ballance claims an average of 5 to 6 weeks as the necessary time to cure the case from the time of the first operation.

The increase in the popularity of this operation has been enormous amongst aurists not only here but abroad. Only recently one Englishman reported his experience as based on 400 cases treated by operation. The pendulum swings from one extreme to the other. The happy mean between meddlesome interference and a dangerous conservatism is hard to maintain. I have seen patients from a six months babe to a sixty-year woman subjected to the radical operation, and while it may be a little overdone in certain large clinics and by individual operators, still it is not by any means so generally employed as it deserves and promises to be. In no operation is a strict knowledge of anatomy more important or where an overbold rashness may do more harm.

My personal experience with this operation is based chiefly on cases operated on at the Manhattan Eye and Ear Hospital. During my second year's service the operation became very popular and we used to do about as many radical mastoids as simple ones. The half-dozen cases in which I had occasion to do this operation came from the various clinics of the institution. Several of my cases were secondary to Schwartze operations in which the post-auricular wound had failed to heal and a discharging ear and sinus remained. These healed nicely after the radical operation had been done, although no skin grafts were used to hasten the epithelialization. Another of my cases was a boy of about twelve with a chronically discharging ear and a marked and progressive atresia of the external meatus. Upon examination under an anæsthetic the middle ear was found filled with cholesteatomatous material and a radical operation was advised. At operation the mastoid was found filled with a cholestomata which extended into the middle ear and attic and was causing the closure of the meatus. The entire mastoid had to be cleaned out and a radical operation was then done. A Körner flap was made from the posterior wall of the cutaneous canal and the wound sutured behind. The case healed up nicely and no further trouble was experienced from the atresia. In several of my cases I tried a Wolfian flap taken from between the auricle and the hair line. This is left attached by a pedicle above and includes the entire thickness of the skin. This flap was suggested by Dr. Berens and served both to hasten the dermatization of the cavity and to close the orifice of the eustachian tube, which often gives trouble in the after treatment by keeping up the discharge. In all my cases I was able to close the posterior wound at the time of operation, but I have seen cases where the wound was so large and the amount of dura exposed so considerable as to make it much safer to leave the wound open until granulations have gotten under way and the risk of brain complications past. The danger to the facial nerve is not very great in competent hands. None of my cases showed any facial irritation and only a very few of all the other cases I have seen suffered

from this accident. It is however sufficiently great to demand great caution in working in the neighborhood of the nerve as the result of this mistake is so apparent to all who may see the patient afterwards.

I am frank to admit that an absolute cure is not attained in every case submitted to this operation but the least that is gained is a freedom from the danger of intracranial complications and in the vast majority of the cases the cessation of the discharge. If the hearing is acute before operation, it may be somewhat impaired by it but in those cases where the hearing is much reduced, the operation may not affect it at all or may even improve it. The operation itself is only the beginning of treatment and the final result will depend largely upon the care and thoroughness of the after treatment. Unfortunately it is impossible to tell beforehand what the result on the hearing will ultimately be.

In conclusion, the radical operation is based on the principles of good surgery as practiced in other parts of the body and is the outcome of a great amount of work in several countries and by many workers. In properly selected cases and in capable hands, it has proven of great value in just that class of cases in which the older Schwartze was least indicated. While undoubtedly the technique is complicated and constantly changing in minor details as time goes on, still it is sufficiently satisfactory now to obtain good results. Its growing use should eventually diminish greatly the number of brain abscesses and sinus thrombosis cases coming to operation and autopsy. The education of the physicians of the country must, however, go hand in hand with that of the laity as to the significance and danger of the much neglected running ear.

THE STATE BOARD WORK.*

WALTER H. SAWYER,
Hillsdale.

The law known as the "Chandler Medical Act" came into force in 1899. Previous to that time there had been no organized body intrusted with the supervision and restriction of the practice of medicine within the state. Frequent efforts had been made to draft a satisfactory law, but it had met with so much opposition from the different schools that it could not be passed. Michigan bore the stigma of having degraded standards of professional acquirement, and for this reason became the dumping ground of other states.

This condition of low standards prevailed when the State Board of Registration in Medicine came into legal existence. While the law of necessity conferred the right to practice upon all those who at the time of its passage had complied with the previous law, and who met its formal requirements, it placed with the Board the power to raise standards by intrusting to

*Read before the Meeting of the Sixth Councilor District Society, at Durand, May. 11, 1905.

it the determination of competent professional attainment.

This was a long step in the right direction, and was followed by another and very important addition in the amendment known as the "Nottingham Act." By this improvement and its interpretation by the Board, it has been possible to make the present standard of professional acquirement equal to, or better than that of any State in the Union, and also it has made it possible for Michigan to take a leading and important part in bringing about a reciprocal agreement with other States.

The present Legislature has enacted a law which makes it possible for students matriculated in recognized colleges, who have passed the first two years of scientific work, to appear for examination in those fundamental courses and get a credit which shall be honored by the Board at the final examination, if presented within three years, with the necessary credentials. This measure was prompted by a request from the students in the medical colleges of the State, which request seemed reasonable and had the Board's approval. It relieves the student from a burden during the last two years and permits undivided attention to be given to the practical work.

In the main, the medical legislation has been satisfactory in that it has accomplished all that was expected. Some difficulty has been experienced in punishing offenders because justice court juries would not convict, in spite of the most convincing evidence of guilt, the local sentiment in favor of the defendant being too strong to overcome.

The Legislature is asked to enact an amendment to the law, increasing the penalty and bringing the offence within the jurisdiction of the circuit court, and thus avoiding the tedious and often unsatisfactory litigation to enforce its provisions.

In January, 1904, the Board summoned to appear before it a number of licentiates, who were responsible for indecently suggestive advertisements in the state papers, to show why their licenses should not be revoked. They appeared and through their attorneys objected to the constitutionality of the law under which the Board was acting and enjoined it from proceeding further. These cases are still in the courts, awaiting decision.

The Michigan Board is the only one thus far that has established a minimum standard of preliminary and technical requirement which is definite. No subject has had more serious attention than the preparatory education necessary to entrance upon the study of medicine. The "Nottingham Act" gave the Board the right to dictate, within limits, what this qualification should be, and in accordance with the law, a schedule of preliminary requirement was prepared. The law recognizes as sufficient qualification, the certificates from such high schools, academies, and colleges as comply with the conditions imposed by the Board. In cases in which an applicant for registration cannot satisfy the Board of this qualification, he may appear before the Board of Preliminary Examiners, chosen because of special fitness for this duty, by the Board of Registration, and given an opportunity to evidence before this auxiliary Board that his preparation meets the demands. Every applicant must file with the Secretary of the State Board of Registration in Medicine his verified credentials, in detail,

upon blanks furnished for that purpose, together with his diploma from a recognized medical school, before he is admitted to examination in medicine. This supervision of preliminary training has necessitated greater care in the acceptance of students by many of the colleges.

To comply with the growing demand for more careful preliminary training and yet abridge the time necessary to a liberal arts degree plus a medical degree, some of the schools are offering combined courses, or giving credit in the medical course for satisfactory work done in such subjects as may be included in the curriculum of both literary and medical schools. While educators are not in accord as to the policy which entrusts any part of the medical course to other than medical schools, yet there is a tendency of the colleges to give credit for good courses furnished by the liberal arts schools; besides, the ranks of the profession can be abundantly recruited by those who are willing to devote full time for baccalaureate and medical degrees. The time is coming when a liberal arts degree will be a requisite, and it is a question whether the combined course is a step forward.

There has been much discussion as to what should constitute a good diploma. While under the law a diploma is used only as an identification credential, yet that diploma must be from a school whose equipment and curriculum conform to the standard established by the Board. While there is a difference of opinion as to what this equipment and curriculum should be, the Michigan Board has insisted that a diploma must have a fixed value, and to this end has established a standard of minimum requirements which has the approval of the leading colleges and educators of the country. Most of the medical schools are seeking recognition and are cheerfully conforming to the standard required. Each school asking for recognition is furnished a blank upon which is detailed the length of course, the equipment, and the number of hours devoted to each subject, including laboratory and clinical work. As far as it has been possible, a personal examination is also made by some member of the Board. This work has been done without fear or favor and must be a factor for good.

At a recent meeting of the Association of American Medical Colleges, a standard curriculum was adopted which is almost identical with that required by the Michigan Board. This action will materially assist in placing all medical schools on a good basis. The work has now gone so far that any medical school which does not comply with the minimum standard of the State Licensing Boards will have little reason for existence.

This Association also accepted a schedule of preliminary requirement such as the Michigan Board had demanded, and it provided for the inspection of schools. Of the one hundred fifty-four medical colleges in the United States, sixty-six have membership in this body and its action will be very influential in raising standards.

The American Confederation of Reciprocating and Licensing Medical Boards, an organization brought into existence largely through the efforts of the Secretary of the Michigan Board, who is also Secretary of the Confederating Boards, has energetically and effectively labored to establish mutual interchange of licenses between the States. One by one they are

dropping into line and accepting the conditions imposed. The Confederation has formulated and adopted two rules, known as qualifications No. 1 and No. 2, which are as follows:

QUALIFICATION NO. I.

"That a Certificate of Registration showing that an examination has been made by the proper Board of any State, on which an average grade of not less than 75 per cent. was awarded, the holder thereof having been at the time of said examination the legal possessor of a diploma from a medical college in good standing in the State where reciprocal registration is sought, may be accepted, in lieu of examination, as evidence of qualification. Provided, that in case the scope of the said examination was less than that prescribed by the State in which registration is sought, the applicant may be required to submit to a supplemental examination by the Board in such subjects as may have been covered."

QUALIFICATION NO. II.

"That a Certificate of Registration, or License, issued by the proper Board of any State may be accepted as evidence of qualification for reciprocal registration in any other State. Provided the holder of such certificate had been engaged in the reputable practice of medicine in such State at least one year; and also provided, that the holder thereof was, at the time of such registration, the legal possessor of a diploma issued by a medical college in good standing in the State in which reciprocal registration is sought, and that the date of such diploma was prior to the legal requirements of the examination test in such State."

Qualification No. I. is essential to any reciprocal agreement, while Qualification No. II. is desirable and is conceded in most instances. Some States have for a longer time had more rigid laws and are not willing to relinquish the consequent advantage. However, when there is a mutual exchange of courtesies under the first condition, an acceptance of the second condition can be expected to follow. We now have reciprocity with Indiana, Wisconsin, Iowa, Kansas, Nebraska, Kentucky, Virginia, and Maryland; and partial reciprocity with Illinois, Ohio, New Jersey, and Maine, and it is reasonable to expect that the time is not far distant when a license in one State shall have full recognition in all.

The day is past when the practice of medicine can be entered upon without the most thorough preparation. The better schools have labored in competition with diploma mills to raise the standard of professional requirement and are now seeing the fruits of their persistent effort. A great many influences have been at work to accomplish the rapid progress of the past few years. The association with well trained men has had its effect not only upon those who have not had the benefit of better equipment, but also upon the laity, who are constantly increasing their conception of the ideal medical man. But beneath it all is the real advancement made in the science of medicine. There are so many more fixed points from which to take bearings that it is no longer a groping in the darkness of mystery, superstition, and empiricism. Every new fact has broadened the field of medicine and made increased demands upon its devotees.

AMERICA'S PART IN THE PROGRESS OF SURGERY.*

BENJAMIN R. SCHENCK,
Detroit.

In choosing my subject—that of America's Part in the Progress of Surgery—I have selected one which I thought might be interesting to all. I believe that too little time is spent in our medical societies on the history of medicine, not perhaps too little in reviewing the achievements of the past but in paying honor and tribute to the men who have laid the foundations on which we have built. We Americans are too apt to glorify the accomplishments of the British, French and German investigators and to belittle the pioneer work which has been done in our own country. It is the fashion to quote from foreign authors and either overlook or regard as insignificant the contributions which have been made to modern scientific medicine and surgery by our own countrymen.

American medicine has had too few historians. We need more men who will write as have Billings, Gross, Osler and Packard, who will search out important facts in the history of American medicine and set them before us in an entertaining and instructive style. There are no greater sources of inspiration than the essays of these great men, essays lauding not themselves, but the staunch pioneers who have gone before.

Although our country is much younger than those of Europe and our universities but babes in comparison with the ancient institutions of the east—institutions having at their command material, accumulated through centuries, and the spirit of research fostered by years of investigative achievement, Americans, by acquiring the best afforded by the teachers across the water and adding to it work, the outcome of Yankee ingenuity, unhampered by prejudice, if not inspired by precedent, have raised scientific medicine in America to a plane unsurpassed to-day in any country of the world. It may be true that in a few selected lines one may gain more in London, Vienna or in Berlin than in Boston, New York, or Philadelphia but the time has gone by when it is necessary for our young men to go to Europe to gain the best medical education. In no department is this more evident than in surgery. I have seen a majority of the most famous surgeons of the day, have seen them in the surgical amphitheatre and in the class room and I am convinced that, in so far at least as operative surgery is concerned, one need not leave the confines of our own country to see and to learn the best which the world affords.

To no departments of medical knowledge has America made more valuable or more numerous contributions than to those of surgery and operative gynecology. For some years in my reading I have kept notes on interesting historical points bearing on the origin of certain surgical ideas and references to the biographies of the men who were the first to do certain operations, but it was only when I began to search through the literature of the second, third, fourth and fifth decades of the century just closed, that I began to realize how truly magnificent have been the contributions of our

*A portion of a paper read before the Detroit Academy of Medicine, December 13, 1904.

fellow countrymen to surgical knowledge. We are all more or less familiar with the names of Valentine Mott, Ephraim McDowell and Marion Sims but how many of the profession have ever heard of Erastus Wolcott, John Bobbs or even Philip Physick, called by Gross the father of American Surgery?

I know of no pleasanter evening's diversion than to sit down with the earlier numbers of some of our older periodicals, such as the *American Journal of the Medical Sciences* which began in 1820, and trace out the changes in the surgical articles which the advancement of knowledge wrought year by year. In no other way can one, at least of us younger men, so well appreciate the influence which anaesthesia, asepsis and the knowledge of surgical pathology have successively had on surgical thought and work. And in no other way can one so well appreciate the impress which America has made on the surgery of the world.

So in selecting a subject for this evening, I thought that it might be interesting to briefly sketch the dawn of modern surgery in the United States and bring before you, very inadequately, some of the things first done on this side of the water and remind you of the men who did them. The facts are in no wise new nor are they inaccessible, for several papers have set most of them forth—notably the papers of Gross in the *American Journal of the Medical Sciences,* in 1876; of Billings in *Dennis' System of Surgery;* of Dennis in the *Medical Record,* in 1892, and of Tinker in the *Johns Hopkins Hospital Bulletin,* in 1902.

It is not my purpose to review the early history of medicine in America but in order that we may have a glimpse of the conditions under which our pioneers worked, it will be necessary to go back for a moment to colonial times.

Medicine at this period was in a chaotic state. There were three classes of medical practitioners, the medical missionary, the regular physician and the charlatan.* The former were particularly numerous in New England and the latter in the southern colonies. "At that time," says Jacobi, "medical practice was learned in apprenticeships; young men would serve and study with a practitioner from three to seven years and those who had the means and the ambition of learning went abroad to Leyden, Paris, Padua or Great Britain." It later became the fashion to study in Great Britain so that in 1776 a great majority of the educated physicians were graduates of the University of Edinburgh, the first, according to Billings, being John Moultrie, a South Carolinian, who received his diploma in 1750.

"The first dissection of the human body in America was made in New York City in 1750 and the first course of lectures on anatomy and surgery was given at Newport, Rhode Island, in 1756 by Dr. William Hunter, a cousin of John Hunter and an Edinburgh graduate, while the first regularly organized medical school was established in Philadelphia in 1765 by Drs. William Shippen and John Morgan."**

Prior to 1800, there was only one book on surgery, by an American author, printed in the United States. This was entitled "Plain, Concise, Practical Remarks on the Treatment of Wounds and Fractures," and was by Dr. John Jones,

*Steiner. A Contribution to the History of Medicine in the *Province of Maryland,* 1636-1671. *Johns Hop. Hosp. Bull.,* August, 1902.

**Billings. *Loc. cit.*

the professor of surgery in King's College (now Columbia) from its commencement in 1767 until his death in 1791. This litle book was the *vademecum* of the colonial surgeons during the Revolutionary war.

In 1780 there was only one medical library in the whole country, located at the Pennsylvania Hospital, in Philadelphia, and containing upwards of 250 volumes.

Of the four early medical schools we have seen that the University of Pennsylvania was founded in 1765, and the medical department of King's College (now Columbia) in 1767. Harvard's Medical School was opened in 1783 and the University of Maryland in 1807.

At the close of the Revolutionary war, there were a number of men who had been more or less successful as army surgeons but not one among them, except Dr. John Warren, of Boston, the first professor of surgery in Harvard, can be called in any way great.

Contemporaneous with or a little later than John Warren lived four men of whom Gross says, "It is not probable that America will ever again produce four surgeons of equal renown with Philip Syng Physick, John Collins Warren, Valentine Mott and Benjamin W. Dudley, for the reason that it is not at all likely that an equal number of young practitioners will ever again be placed under equally advantageous circumstances for their development."

Philip Syng Physick was born in Philadelphia in 1768, and after spending four years abroad, during which time he was on intimate terms with the immortal John Hunter and held for the last year, the house surgeonship of St. George's Hospital, began practice in his native city. Just then (1793) the terrible epidemic of yellow fever which cost Philadelphia 4,000 of her inhabitants, broke out and the young practitioner was appointed physician to the Bush Hill Fever Hospital, where he met, in the course of his service, many prominent citizens. Having this advantage, together with the prestige of four years of foreign study, and the fact that there were but a few men in the whole country of equal surgical ability, would, it might seem, favor his early attaining a large practice. Such, however, was not the case and he became so down-hearted, that for a time he seriously considered giving up the profession and settling upon a farm. "Gradually however this chilling, and discouraging feeling, so often experienced by the young aspirants after fame, wore off and long before he had reached the meridian of life, he stood at the head of his profession, as the first surgeon of the American continent." (Gross.)

He was professor of surgery in the University of Pennsylvania from 1805 to 1818, of anatomy from 1818 to 1831 and died in 1837, aged 69 years. Physick was a fearless and successful operator and a forceful teacher. His contributions to literature are not many.

He was the first to use absorbable ligatures from animal tissues, employing strings of buckskin which he prepared by rolling them on a marble slab and which he carried in his waistcoat pocket or in the rim of his hat. He first advocated the rest treatment for hip disease; described the first case of sacciform rectum; was a pioneer in the reduction of dislocations by manipulation and invented, in 1827, the tonsillotome.

But a few months before his death, he did the celebrated operation on Chief Justice Marshall of Maryland, removing by lithotomy over 1,000 calculi.

"The Father of American Surgery" is a name justly applied to Physick.

While Physick was at the zenith of his career in Philadelphia, John Collins Warren was becoming famous in Boston. This illustrious son succeeded his illustrious father to the chairs of anatomy and surgery in Harvard, in 1815. These he held for twenty-five years and great was his influence both as a teacher and as a writer. Did John C. Warren's reknown rest alone on his part, as operator, in the introduction of anaesthesia his

name would still be found in the "Hall of Fame."

Passing now to New York we find the center of the surgical stage occupied by that picturesque Quaker—Valentine Mott.

The son of a physician, Mott was born on Long Island in 1785; graduated at Columbia; studied with Sir Astley Cooper and began practice in New York in 1810. His fame first became international in 1818, when after successfully tying the innominate artery, a feat never before accomplished, he awoke to find himself the "observed of all observers." The patient lived some weeks but finally died of secondary hemorrhage.

Mott held the chair of surgery successively in Columbia College, in the College of Physicians and Surgeons, after it was merged with Columbia in 1813, in Rutgers Medical College, of which he was one of the founders, and in the Medical department of the University of N. Y.

Mott was truly a great surgeon and did much by his influence on a host of medical students to mould the trend of surgical thought. He is especially famous for his work on the ligation of arteries. It has been said of him:—

"No surgeon, living or dead, ever tied so many vessels, or so successfully, for the cure of aneurism, the relief of injury, or the arrest of morbid growths. The catalogue, inclusive of the celebrated case of the innominate artery, comprises eight examples of the subclavian artery, fifty-one of the primitive carotid, one of the common iliac, six of the external iliac, fifty-seven of the femoral, and ten of the popliteal; in all, one hundred and thirty-eight."

For those days, a wonderful record!

During the first forty years of the last century the great west and the southwest, then beginning to be settled and developed, were without a surgeon of any renown. Recognizing this, Benjamin W. Dudley, a Virginian, who had located in Lexington, Kentucky, gave up his practice and spent four years in Paris and London under the great masters of the day. Returning, he joined in the organization of and taught surgery in the Transylvania University—that meteoric institution which had such an interesting history.

Dudley was looked upon as the authority in his part of the country. His national reputation rests largely upon his skill as a lithotomist. He operated for stone about 225 times and did over 100 cases before losing one. He was a great advocate of low diet and rest in the treatment of tuberculous and other chronic inflammations—"a puke and a purge and a purge and a puke being used alike in tuberculous diseases, affections of the hip joint, spine, etc."

I have thus dwelt on the lives of these four men perhaps rather more fully than a paper of this kind would justify but it was very largely to them that surgery in America owes its beginning. Not but that there were others, notably William Shippen, Wright Post, William Gibson and Nathan Smith, who were almost equally famous in their day. However, each of these four, in his own section of the country was the striking character and throughout a quarter of a century made a great impression year by year, upon large classes of medical students and inculcated the teachings of Hunter, Cooper, Bell and Abernethy, besides imparting the fruits of their own labors.

Let us now review some of the original contributions which America has made to surgery.

In the Exsection of Bones.—Jameson, of Baltimore, was the first to remove the entire upper jaw in 1820 and Deaderick, of Tennessee, the lower jaw in 1810. This latter operation was for the removal of a large enchondroma. Valentine Mott first excised the clavicle for malignant disease and Dr. Dixi Crosby, of Hanover, Vermont, did in 1836, the first interscapulo-thoracic amputation—a most formidable operation in pre-anaesthesia days.

The removal of the coccyx for what is now known as coccyodynia, originated with Dr. Josiah C. Nott, of Mobile, although Sir James Y. Simpson often gets the credit for having first suggested it.

In this connection, may also be mentioned the fact that, although Sir Benjamin C. Brodie is usually cited as the originator of the surgical treatment of osteomyelitis, the credit belongs, according to Gross, to Nathan Smith, of New Haven, who advocated it and operated in the latter part of the eighteenth century.

In the Ligation of Arteries.—The innominate artery was first tied by Mott, in 1818, and the subclavian, in its first portion, by Rodgers, a few years later. The latter patient died and this operation was first successfully done by Halsted, in 1892. The first successful ligation of the common carotid was by Amos Twitchell, of New Hampshire, eight months before the case of Astley Cooper, who is generally credited with this operation. The common iliac was first tied in 1820 by William Gibson, then professor of surgery in the University of Maryland.

The introduction of metallic ligatures for vessels is due to Dr. Henry S. Levert, of Mobile, who advocated them after a series of experiments undertaken, under the direction of Physick, while a medical student in Philadelphia.

In connection with the subject of the ligation of arteries, might also be mentioned the fact that digital pressure, maintained for a number of hours by different assistants for the cure of aneurysm was first employed by Jonathan Knight, of New Haven, in 1847.

In Dislocations.—Pulleys and forcible traction were used in the reduction of dislocations until the time of Nathan Smith who "practised manipulation successfully." Physick has already been mentioned in this connection. Tinker says:

"Dr. William W. Reid, of Rochester, N. Y., was the first to make a thorough study of the subject and to show by a series of dissections, experiments and observations the desirability of reducing dislocations by this method." The work of Bigelow, of Boston, on the reduction of the hip is too well known to require mention.

The well known method of diagnosticating a luxation of the shoulder from the fact that, with the elbow at the chest, the hand can not be placed upon the opposite shoulder, was original with Dr. L. A. Dugas, a Georgian practitioner. His name has never been associated with this valuable point.

In the treatment of fractures.—I can not do more than give you a list of the devices contrived in America for the treatment of fractures. They comprise (1) the seton of Physick, much used in early times in handling compound fractures, (2) the extension apparatus of Buck, (3) the anterior splint of Nathan R. Smith, (4) the bran dressing of Barton, (5) the contrivance of Barton and Gibson for fractures of the lower jaw, and (6) the introduction of adhesive plaster by Gross.

Before reviewing the achievements in abdominal and brain surgery, I must briefly refer to America's greatest contribution to medicine and greatest gift to the world, that of anaesthesia. To whose credit its discovery belongs has never been absolutely settled. Whether to Wells, Morton, Jackson or Long is a question which will never be answered.

You are all familiar with the controversy. One of the most exhaustive and readable articles on this unfortunate dispute is that of Henry J. Bigelow* of Boston, who was not only present at the first operation in which anaesthesia was used (at the Massachusetts General Hospital, in October, 1846), but was also familiar with the events leading up to this test. Bigelow unhesitatingly gives the credit to Morton. I do not know how familiar you are with the claims of Crawford W. Long of Georgia, which have been ably set forth by Young.** In 1842, Long first operated on a patient who was etherized, a fact which Young seems to have proven beyond doubt. To whomever belongs this inestimable honor and glory, the discovery is an American one and one of which we may be justly proud.

To the surgery of the abdominal viscera, the contributions of Americans have been both numerous and important. Successes have followed successes until there is now no organ to the treatment of which surgery has not been applied. So many have been the suggestions, improvements and contrivances put forth by our countrymen that most of them can only be mentioned in the time at our disposal. I wish to particularly dwell upon ovariotomy, briefly, for the facts in connection with it are well known; upon nephrectomy, cholecystotomy, and appendectomy, at somewhat greater length.

Ovariotomy, which may be said to have prepared the way for abdominal surgery, was first done in 1809 by Ephraim McDowell, who, like Dudley, was a Virginian by birth. After studying with John Bell in Edinburgh, McDowell located, in 1795, at Dansville, Kentucky. Fourteen years later he did the first ovariotomy but did not publish the case until 1817. Undaunted and undiscouraged by the doubts and sneers of his associates, he operated before his death on 13 cases, eight of which were successful.

During the next thirty years, abdominal surgery was almost wholly limited to ovariotomy.

Regarding nephrectomy, practically all the text books state that it was first done by Simon, in Heidelberg, in 1869. As a matter of fact, it was done eight years previously in Milwaukee, by Dr. Erastus B. Wolcott. The following account of the case is taken from the report which was published by Stoddard, who assisted at the operation.

> The patient was a man of 58 years, who had suffered for six years with a large abdominal tumor. On examination, the swelling was found to be semi-solid and to push the abdominal wall forward for about two inches in the right hypochondriac region. An incision was made over it when it seemed that the superior attachment was by a cord about an inch in circumference, running upward, behind the liver. This pedicle was tied off, the tumor removed, and the wound closed. The patient lived fifteen days, dying finally of exhaustion, "brought on by the large amount of suppuration which necessarily followed."

Born in 1804, in Yates County, New York, of intellectual parents, who had come from Connecticut, Wolcott's early advantages were not many. At the age of 18, he began to read medicine in the office of Dr. Joshua Lee, a well-known practitioner of the time in western New York, and at twenty-one was licensed to practice by the Yates County Medical Society. After some years spent as a surgeon to a mining company in South Carolina, he enrolled as a student in the College of Physicians and Surgeons of the Western District of New York, from which institution he took his M. D. in 1833. In 1836, he was appointed an army surgeon and for three years was stationed at Fort Mackinaw. He resigned in 1839 and located in Milwaukee,

*Bigelow. *American Journal of Medical Sciences*, 1876.

**Young. *Johns Hop. Hosp. Bull.*, August, 1897.

where he was in practice for more than forty years.

Tinker says of him:

"Personally, Dr. Wolcott was a man of remarkable physique. He was early noted for his great strength, and when a young man it is said that he could run and jump over a team of horses. He retained his physical powers even to the time of his death.

"He was a man of unusual strength of character and intellectual attainments and made up for the lack of a liberal education by a wide reading. All the records which we have of him specially mention his generosity. Nothing in the way of fatigue or hardship ever prevented immediate attention to a professional call, no matter what the financial standing of the patient might be. At the time of his death (Jan. 5, 1880), thousands of poor people gathered from the city and surrounding country to honor his memory, and the arcade in which he lay in state was choked by the middle and lower classes."

Cholecystotomy.—The mere incision into the gall bladder and the evacuation of pus and stones was done in the 17th and 18th centuries, notably by Fabricius, in 1618, and a century later by Petit, but it remained for John S. Bobbs, of Indianapolis, to perform, in 1867, the operation, by opening the abdomen, as it is done to-day. Time will not allow of a description of the procedure, but it may be found in the Transactions of the Indiana Medical Society for 1868 and in Tinker's article. Suffice it to say that the abdomen was opened, the gall bladder incised, between 40 and 50 stones removed and both incisions closed. The patient was still living in 1899.

John Stough Bobbs was born at Green Village, Pennsylvania, of German parents, in 1809, and at the age of 18, began the study of medicine with Dr. Martin Luther in Harrisburg. He graduated at Jefferson in 1836, and located in Indianapolis, where, on account of his ability, he soon attained a large practice. He was prominent in medical organization, an excellent speaker, a forceful but reluctant writer and a conscientious citizen. He died in 1870.

"He may be truly considered one of the founders of scientific medicine and surgery in the middle west. As the greatest general surgeon and teacher of his day in that section of the country, as a public-spirited man and soldier, his name will long be remembered in the region in which he practiced."

It seems to me that the names of Wolcott and Bobbs should have more than a local significance.

The events which put the operative treatment of appendicitis on the present firm basis, are still fresh in the minds of many present. Americans have unquestionably done more to bring this about than all other workers combined. I need only recall the paper of Willard Parker (1867), in which he advocated early operation in perityphlitis; the paper of Fitz, of Boston (1886), in which the word appendicitis appeared for the first time; the operations of Sands, of New York, whose work was taken up, when he died, by his former assistant and successor, McBurney. Whether Morton, of Philadelphia, or Sands, of New York, did the first appendectomy I have been unable to decide, both having removed the appendix in the spring of 1887. I believe the enunciation of Ochsner's principles to be the most important advance since the pioneer work on this subject.

In looking back over the past fifty years it is difficult to realize the vast strides which have been made in the diagnosis of abdominal conditions, for, in the middle of the last century, but little was known of some of the commonest lesions. To illustrate this let me read an interesting paragraph from Dr. Emmet's Reminiscences of the Founders of the Woman's Hospital of New York. It relates to Dr. Alexander H. Stevens, a surgeon to the New York Hospital and one of the keenest diagnosticians of the day.

"Soon after the hospital was opened I was present at the first consultation. The case was that of a young woman with what was thought to be a movable tumor of the abdomen. Dr. Sims held that it was a fibrous growth connected with the uterus by a slender attachment, and he wished the sanction of the consulting board to open the abdomen and remove it. He made so plausible a plea that at one time it looked as though he would carry the Board with him in favor of the operation. All had spoken favorably when Dr. Stevens arose. He expressed his great interest in the subject, but said that he knew nothing about a fibrous tumor, doubted, in fact, if he had ever heard of one before. He felt every confidence in Dr. Sims and had no doubt that he would be successful, if he undertook the operation. But he protested, in the name of humanity, against such a procedure, for, if Dr. Sims were successful in the removal, it would not be long before every young doctor in the land would be opening the belly of every young woman, to see if she had a fibrous growth. Surely the spirit of prophecy must have hovered over the old man, as he thus had a glimpse into the future."

There is hardly a subject in abdominal surgery to which America has not contributed much. Thus we may claim several excellent methods for the cure of hernia; many contrivances which are of inestimable value in intestinal anastamosis (I need only mention the Senn plates, the Abbe rings, the Murphy button and most valuable of all, the McGraw ligature, destined to make the inventor's name known and honored for all time); the operation for perforation in typhoid fever and the first operation for gunshot wound of the intestine.

In plastic surgery we may be proud of uranoplasty, done in 1843, by John Mason Warren, grandson of the first professor of surgery in Harvard and father of the present occupant of the same chair; we may be proud also of Sim's work on the repair of vesico-vaginal fistula, done in 1852, two years before that of Simon; Pancoast's successful case of extrophy of the bladder; Emmet's method of trachelorrhaphy and repair of the perineum and the suggestion of Hamilton, 1847, which lead to skin grafting.

In the surgery of the nervous system, mention must be made of Dudley's celebrated cases of trephining for epilepsy; Carnochan's resection of the superior maxillary nerve, proximal to Meckel's ganglion; Hartley's removal of Meckel's ganglion and the first case of the evacuation of a brain abscess, done by Detmold, in New York, in 1849.

Aspiration of the pleaural cavity, thoracentesis pericardii, litholapaxy and intubation are all American in origin.

Much more, Mr. President, might be written. Many other names, which will be known for centuries, might be mentioned. Time forbids.

The trend of surgery of the next fifty years will be different from that of the past half century. It is now our duty to study more carefully the conditions which favor non-operative treatment and to learn to recognize more clearly the limitations as well as the benefits of operative surgery. Origination, radicalism, daring and boldness characterized the surgery of the past century. Improvement, conservatism, caution and carefulness will stamp that of the future Just as the work of our statesmen of to-day is perhaps less brilliant than was that of the fathers who framed the constitution, so will our efforts be less dramatic than those of our surgical fathers. Fewer men will become famous but the work which will be done will be none the less important and the advancement which will be made, will be none the less real.

A CASE OF FAMILY ATAXIA OF THE HEREDITARY-CEREBELLAR FORM WITH NECROPSY.

IRWIN H. NEFF,
Pontiac.

In 1895 the writer published in the *American Journal of Insanity* (January, 1895), a report of thirteen cases of ataxia in adults with hereditary history.

The following clinical summary was then made: (1) Occurrence of a form of ataxia in thirteen persons in four generations of one family with hereditary history. (2) Marked similarity of symptoms in those affected. (3) The onset in all but two cases was between the ages of fifty and sixty-five: The first symptom in one case being noted at the age of seventy-two; the initial symptom in the other case appearing at the age of sixty-eight. (4) The occurrence of insanity in four of the thirteen cases. In all cases the form of insanity was a dementia, differing in degree and corresponding to a dementia resulting from organic brain disease.

The two cases then under personal observation were reported and the history given of the other members of the family similarly affected.

Allusion was made to the fact that these two cases resembled in some respects those reported by Fraser in 1880, and Sanger Brown in 1892. Certain atypical symptoms prohibited a diagnosis of Friedreich's ataxia and the diagnosis of hereditary-cerebellar ataxia did not seem at this time to be justifiable. However, it was believed that the symptoms might depend on a cerebellar lesion. This reserved diagnosis has been verified by the pathological findings in one of the cases reported.

Since the publication of the original report, the two forms of family ataxia have received much attention. A number of cases have been published, and the points of differential diagnosis have been quite clearly brought out. As exemplifying this, it may not be amiss, before reporting the case, to refer to a few of the points of difference between the two forms of family ataxia. The tendency, at present, is to comprise under the term "family ataxia," two forms, namely, Freidreich's ataxia and hereditary-cerebellar ataxia, admitting a difference in symptomatology and pathology, but ascribing to these two varieties one nosological factor, namely, the embryonic character in their origin. Spiller (Brain, pt. 4, 1896, p. 588) emphasizes this common factor and furthermore suggests that an infectious exciting cause may be present in some of the cases. The report of Fraser's series of cases in 1880, (*Glasgow-Medical Journal,* 1881), demonstrated the fact that cases exist, resembling in many respects cases of Friederich's ataxia, but showing marked clinical differences. This clinical report was supplemented in 1891, by Nonnes publication of a case, showing a marked diminution in the size of the cerebellum.

Cases reported during the past few years, point quite clearly to the fact that these two types of family ataxia can in most cases, be diagnosed clinically one from the other. The cases reported, however, show that transitional forms may occur, making the differential diagnosis

at times a matter of difficulty. The contrasting and corresponding symptoms, as given by Archibald Church (*Journal of Nervous and Mental Diseases,* page 430), are as follows:

FRIEDREICH'S FORM.

Hereditary spinal ataxia appears usually before puberty.

Choreic movements in upper extremeties and oscillations in head and trunk frequent.

Optic atrophy and amblyopia very exceptional.

Tendon reflexes diminished or absent.

Club-foot and scoliosis common.

MARIE'S FORM.

Hereditary cerebellar ataxia appears usually after puberty.

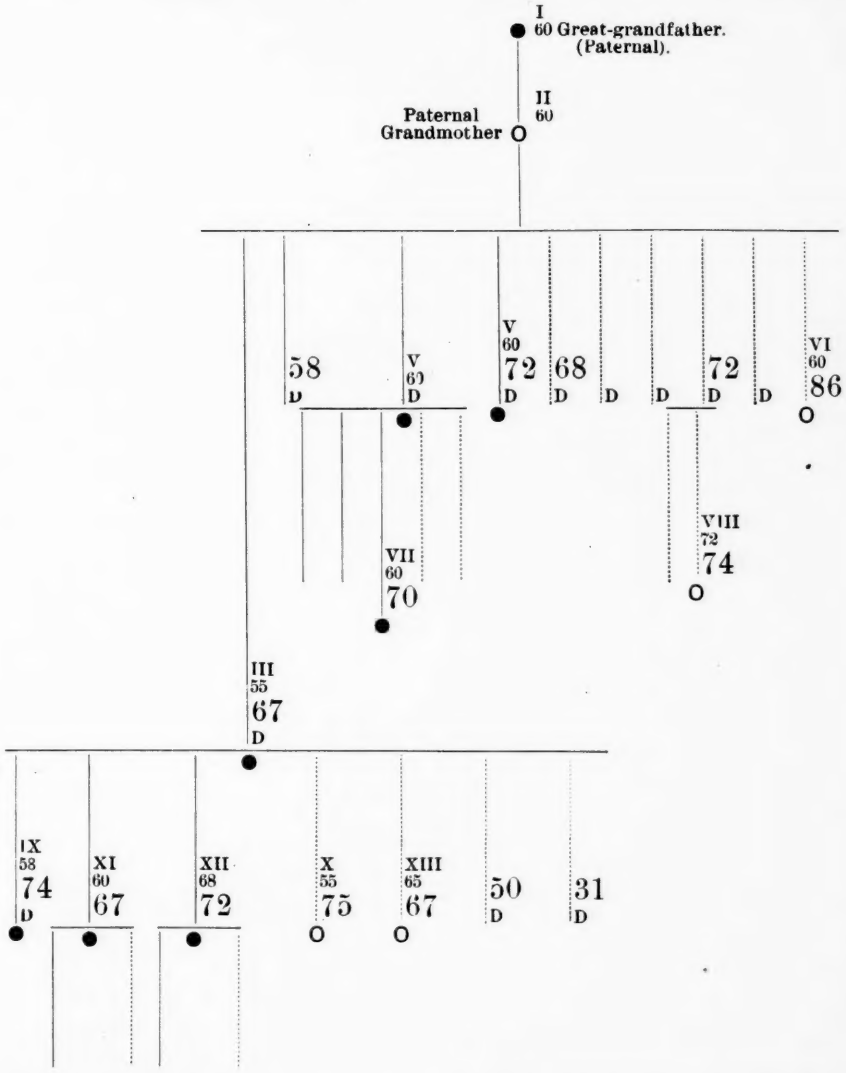
Very common and pronounced.

Common.

Increased foot-clonus frequent.

Exceptional.

The distinguishing features of hereditocerebellar ataxia as given by Collins (Treatment of Nervous Diseases, page 254), art clear and practical. He enumerates the following points of difference:



Continuous lines indicate males.

Broken lines indicate females.

Dots and rings indicate those affected.

"D" indicates deceased.

Small figures indicate age when first symptoms were noticed.

Larger figures indicate present age or age at death.

(1) Uncertain reeling, inebrious gait, occasionally slightly spastic. The patient walks with the feet wide apart by bending forward, head thrown backward, chin elevated and does not watch his feet.

(2) The ataxia is very much less or disappears when the patient is lying down. The incoördination can always be demonstrated even when in this position.

(3) Over action of the mimetic muscles when speaking, or on emotional display.

(4) Hesitating, abrupt, explosive, ataxic, defective speech.

(5) Easily excited, often exaggerated knee jerks and occasional ankle-clonus.

(6) Slight irregular twitching of the eye balls. No true nystagmus. Deficiency of the action of the external recti.

(7) Mental impairment varying from slight stupidity to complete dementia.

As a summary of the essential points of difference between the two forms, the following are the characteristics of the original type of heredeto-cerebellar ataxia as given by Marie:

(1) The late development of this form at twenty to thirty years or later.

(2) The lower extremeties are first attacked. The upper not being involved until late in the disease.

(3) Normal or exaggerated knee jerks, the absence of sensory disturbances, scoliosis and club foot.

(4) The invariable appearance of visual disturbance, more commonly optic-atrophy.

(5) The cerebellar lesions. The spinal cord, if involved, showing only a slight departure from the normal. A reference to the salient points in the case reported by the author will show that the classical symptoms of the cerebellar form of ataxia were well marked.

In order to make clear the relation of the clinical history to the autopsical findings, an abstract is given of the original report, which is supplemented by the further history of the case.

Mrs. C. Age, seventy-five. Admitted to Michigan Asylum for the insane, July 18, 1893.

An inquiry into history previous to present trouble, reveals no facts of importance. At *age* of *fifty-five,* patient noticed that there was an inability to *control her muscles in walking.* This gradually increased and one year after onset of trouble, she *was unable to walk in a straight line* and frequently required assistance. At this time she complained of *pains in back and legs,* but these were not severe in character. These symptoms continued until the age of fifty-eight, when *incoördination of muscles, arms and fingers developed.* Six months after this, *speech was noticed to be stammering and hesitating.* In the course of a year *she became entirely helpless,* the difficulty in walking, *incoördination in arms,* and *speech difficulty becoming more pronounced.* No mental symptoms were noted at this time. At the age of seventy-three, eighteen years after the beginning of trouble, the patient would occasionally become confused, irritable and had delusions of identity with vague apprehensive ideas, these were persecutory in character and referred principally to her relations. Occasionally fits of depression would develop with pronounced emotional instability. An examination at time of admission resulted as follows:

Head small, but symmetrical. *Marked tremor in facial muscles in masticating and also in speaking.* Muscularity well preserved. Pupils equal and normal, and react. No extra or intra-ocular trouble noticed.

Speech markedly ataxic and articulation slow. Explosive quality well marked. Does not misplace words. Deglutition is performed without difficulty.

Arms.—There is marked tremor, "volitional" in character and also on voluntary movement extreme ataxia is developed. *Muscular sense is slightly involved;* in attempting to pick up small objects and in buttoning clothes this is exaggerated. *Terminal Phalanx of thumb is flexed, but* no other deformity is noticed. No atrophy or spasm and no involvement of sensation. Muscular power is good; *ataxia is bi-lateral* and apparently equal.

Legs.—Pronounced ataxia in walking; unable to walk unsupported. *On closing eyes, this is increased and there is a characteristic swaying movement of the whole body.* On several occasions, she fell and was unable to gain her feet. In sitting or in recumbent posture there is marked tremor of upper portion of body, increased on volition. No atrophy or spasm, and muscular sense is normal, *although slight dulling to touch is noticed on inner sides of both legs extending from knee to ankle.* This, however, could not be accurately localized or determined. *Sensation is delayed,* probably dependent on mental condition. No deformity. Emotion always caused an exaggeration of her symptoms.

Reflexes.—Knee jerks active, slight right ankle clonus, no patellar clonus. *Knee jerks transferred. Reinforcement* has no obvious effect. *Muscular and superficial reflexes active all over body*

Psychical Examination.—Slight irritability, mentalization is slow, but she always displays a full realization of her surroundings, converses quite rationally on many subjects and conversation is coherent. No delusions or sensory perversion noted. Evidently a condition of terminal dementia.

Electrical Examination.—There is increased faradic excitability in muscles of face, arms and legs; otherwise reactions are normal.

During September, 1893, intermittent twichings of both eye-balls could be noted on fixation. This symptom was, however, inconstant. Articulation was then markedly ataxic and somewhat explosive. The difficulty in walking had increased and she was unable to walk without assistance. Patient had several attacks of *vertigo,* during which she fell, but there was no loss of consciousness. After attacks, complained of headache which gradually subsided. It was believed that these attacks were incidental to arteriosclerosis which was quite pronounced. During 1894, the following clinical notes were made:

Pupils were somewhat contracted, but reacted normally to light and accommodation. No extra or intra-ocular paralysis. The right eye has small striæ through center of lines. *Optic disc shows beginning atrophy. There is decided limitation of visual field.* Vision 20/100 with plus 3.50 D; can read No. 24 Snellen at sixteen inches. The lens of left eye has a small line through the center, *retina and optic disc normal, with only slight limitation of visual field.* Vision 20/70 with plus 3.50 D; can read No. 20 Snellen type at sixteen inches. *Tremor of facial muscles* were more pronounced and a course tremor was observed in tongue. During the following year a note was made to the effect that "the symptoms are now exaggerated, speech is now pronouncedly ataxic, and tremor in tongue is increased." The reflexes were not as active as form-

erly, but were present in entirety. The atrophy of right optic nerve has increased. Patient had several attacks of exquisite pain in muscles of back that were quite persistent and resistive to treatment.

During the years 1895 to 1898, there was practically no change in character of symptoms. Both the physical and psychical stigmata were constant, and showed no variation in intensity or degree.

The following clinical note was made during March, 1898: "Motor symptoms: Patient is unable to walk but a few steps without assistance, and remains in bed. Has a fair amount of strength for her age. All movements, especially those of the face, tongue and upper extremities are impaired by incoördination, and this symptom is often exaggerated to such an extent that it appears like a course tremor. There is a fine tremor present while the muscles are at rest. Her movements are choeric in character. Articulation is performed with difficulty, by means of this. The muscle reflexes are normal—the reflexes of the triceps are normal—both knee jerks are slightly increased—reinforcement has no obvious effect—plantar reflexes present—pupillary and other organic reflexes are normal."

"*Sensory*—Pain is absent—paraesthesia is absent. There is a slight dullness of general sensation, probably due to senile changes. Patient is quite deaf and rapidly failing in vision. Muscular sense is slightly impaired."

"*Trophic*—There is no muscular atrophy—there is the normal change in bony contour. The skin, hair and nails present the usual changes, incidental to old age."

"*Mental*—At times the patient is slightly depressed, but on the whole is as cheerful as her condition warrants. There is at present no evidence of delusions, hallucinations or illusions. Her disposition is very pleasant. During the fall of 1898 a general wasting of muscles of legs was noticeable. An attack of capillary bronchitis supervened, from which she recovered."

From this time until a few months before death patient remained practically in the same state. However, there was a progressive asthenia, shown principally in an impaired nutrition and gradual loss in weight. Two months before death complained of perverted taste and refused to take food. Later complained of pain in chest and sleep was interrupted. During March, 1900, there was marked oedema of feet and ankles, due to circulatory interference. This symptom increased, and she died of exhaustion, April 6, 1900.

Pathological report by Dr. Theophil Klingmann, Ann Arbor, Mich. There was found sclerotic tissue in the middle cerebellar peduncle and in the medulla. The olivary bodies and other relative fibers were atrophied. Sclerotic tissue was found in various parts of the white matter of both hemispheres of the cerebrum, irregularly distributed. Patches of sclerosis were found in both optic tracts. There was marked arterio-sclerosis in all the vessels of the brain. The spinal cord was similarly involved. The patches of sclerosis were small, but quite numerous.

Microscopical examination of affected tissues showed marked degeneration of nerve fibers and overgrowth of connective tissue.

Therapeutic Notes.

CAFFEIN IN TREATMENT OF DIABETES.—It is recommended to overcome fatigue, as it acts as a general tonic to the heart and kidneys. It is also of service in grave pneumonia for old people and in cases of adynamia.

℞ Sodii benzoatis .....gr. xiv
Caffeinæ .....gr. xxx
Aquae destil. .....dr. iss
M. Dissolve with heat.
Sig. Ten drops hypodermically four to five times a day.

If a stronger solution is needed, the following can be used:

℞ Sodii salicylatis .....gr. xiv
Caffeinæ .....dr. i
Aquae destil.....dr. lss
M. Dissolve by heat.
Sig. Ten drops hypodermically three or four times a day. (*Jour. A. M. A.*, May 27, 1905.)

THIOCOL IN TUBERCULOSIS.—It is one of the best of the creosote preparations. In intestinal tuberculosis its use in several cases brought about a normal condition and number of stools in about two weeks. In laryngeal tuberculosis the author has used thiocol internally and locally as an insufflation in combination with borac acid and cocaine in a few cases with uniformly good results. This preparation is an important addition to our amamentarium since it is pleasant to take (given in orange syrup), does not disturb the digestion, and when given early in pulmonary tuberculosis, before much destruction of tissue has taken place, exercises a favorable influence upon the inflammation, lessening the secretion, cough, fever and hyperidroses and increasing the weight. The dosage is 7½ grains four times a day. (*Szaboky, Wiener klin. Wochenscrift,* 1904, No. 42.)

VARICOSE ULCERS TREATED WITH PEROXIDE OF ZINC.—Beurmann has employed peroxide of zinc in powder and as a 20 per cent. ointment. This is applied to the ulcer and covered with sterilized gauze which is left on for three to six days. In all cases the secondary infection of the ulcers disappeared and granulations and cicatrization developed quicker than by other methods. (*New York Medical Journal,* May 27, 1905.)

HICCOUGH.—Robin, in *Med. Press,* recommends the following combinations in relieving hiccough:

℞. Picrotoxin .....gr. i
Alcoholis q. s.
Morph. hydrochlor .....gr. i.
Atropinæ sulph .....gr. 1/5
Ergotin .....gr. xv
Aquæ laurocerosi .....ʒiii
M. Sig.: Five drops four times a day. And

℞. Magnesiæ (calcined) ....gr. xxx
Sodii bicarb .....gr. xx
Codeinæ .....gr. 1/5
Bismuthi subnit .....gr. xv
Pulv. cretæ .....gr. xv
M. Ft. chartula No i. Sig.: One such powder three times daily.

ACUTE PRURITUS.—M. Gaucher, in *Amer. Med.,* recommends that patients suffering from acute pruritus shall be placed on a strictly milk diet at first and later a milk-vegetable diet. To calm the itching he recommends acetic acid lotions, followed by ointments of menthol and guaiacol, 1 to 2 per cent.

The following ointment is recommended:

℞ Guaiacol
Menthol, ãã .....gr. xv 1
Lanolini .....ʒiiiss 100
M. Ft. unguentum. Sig.: Apply locally morning and evening.

The Journal of the Michigan State Medical Society

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JULY, 1905

Editorial.

"COME INTO MY PARLOR SAID THE SPIDER TO THE FLY."

It is profitable to look at ourselves through another's eyes, or as Burns puts it:

"Oh wad some power the giftie gie us
To see oursel's as others see us!
It wad frae monie a blunder free us,
And foolish notion."

The picture suggesting this thought was published in the advertising columns of the *Medical Record,* May 13, 1905, page 44. It reads thus: "The practice of refraction is the most profitable adjunct to the physician's general practice. We teach you all about it, also advanced ophthalmology by correspondence. All who take our course are entitled to and receive a diploma from a well known chartered college of ophthalmology. Degree "Dr. of Optics." (From a late advertisement of a chartered college of ophthalmology, we learn that the course lasts six weeks, and costs $7.50.)

This advertisement in the columns of the *Medical Record* shows that the college expects to attract readers of the *Record*—mainly licensed regular physicians. It appeals to their thrift in several particulars, viz.: 1. It is a profitable adjunct to their general practice. 2. It can be learned without leaving home. 3. The degree of "Doctor of Optics" is given at the end of the course. 4. From an advertisement in an optometry journal we learn that all this is cheap—seven dollars and fifty cents.

Primarily these colleges were intended to fit opticians to practice ophthalmology. Now they are advertised to regular physicians, to teach them "the practice of refraction" and advanced "ophthalmology."

Doctors have been duped by promoters of "salted mines," "fake manufacturing establishments," "rubber plantations,' "watered stocks," etc.; robbed of their hard earned savings, but that they should be regarded sufficiently hungry to bite at this proposition, indicates that outsiders look upon doctors as ignorant in their own field, viz.: "ophthalmology" including refraction. That physicians, colleagues of Von Graefe, Donders, Bowman, Agnew, Williams, Knapp, etc., should be asked to learn ophthalmology from opticians, peddling diplomas for seven dollars and fifty cents, teaching that most intricate science and art by correspondence within six weeks, through the columns of a regular medical journal, shows how low the laity esteem the medical profession.

That any reputable medical journal would publish such an advertisement shows that for money it is willing to publish regularly a standing insult to every educated physician.

Soberly there must be some basis in the estimate placed by these colleges of optometry and proprietors of medical journals, upon the profession. They must have found compensation by some doctors, seeking personal gain through such sources.

With ophthalmological hospitals and schools, scattered in every large medical center over the country, it would seem

that all doctors desiring to qualify themselves for ophthalmological work, would utilize these advantages. True they call for longer or shorter absence from home; they cost more than seven dollars and fifty cents; and the really good ones far more than six weeks, but they give some actual basis on which to do good work. They show that the practice of refraction is one of the most laborious, complicated, and difficult fields of medical practice; and that competence in ophthalmology demands as a foundation the broadest knowledge of medicine and surgery, and a superstructure, of long training in delicacy of perception of slight variations from physiological function, in minute structures; a quickening of sound judgment, and a fineness of manipulation, only attained by actual experience with clinical material under the guidance of a competent instructor. He who cannot unravel the relation of damaged, or deformed eye structure, to the general nervous system, or who cannot read in the eye evidence of disease in distant organs, is quite unworthy the name of ophthalmologist. It cannot be too strongly urged that as druggists are for the compounding and sale of physicians' prescriptions, so opticians are for the adjustment of spectacle frames, and fitting therein the lenses which ophthalmologists have prescribed.

This is a long distance from the opticians advertising to teach physicians ophthalmology.

PARATYPHOID FEVER AND CLOSELY ALLIED INFECTIONS.

Herbert Fox in a recent publication* very nicely states some of the more recent facts in regard to the "Intermediate" group of organisms:

Buxton suggests that the following classification for all members of the intermediary group (except bacillus dysenteriae) between the bacillus coli and bacillus typhosus: 1. Paracolons causing no typhoidal symptoms in man, composed of many different members but culturally alike. 2. Paratyphoids causing typhoidal symptoms in man and subdivided into type "A" (those cultures distinctly unlike the paracolons) and into type "B" (those cultures resembling paracolons but a distinct species).

Paratyphoid fever differs from typhoid fever in a shorter invasion stage and rise of temperature; shorter or absent period of continued fever; and marked diurnal remissions of temperature, much deeper than enteric and without periodicity. An absence of the Widal is suggestive, if it persists in reasonably high dilutions.

The duration of paratyphoid fever is on the whole shorter than typhoid and the cases where type "B" was adjudged the etiological role, this fact is more striking than in the type "A" cases.

The general findings of the type "A" cases are nearer to typhoid than type "B," the latter presenting a picture more like septicaemia.

The complications of type "B" infections are more numerous, more purulent and the course is more fulminating in these cases.

The causal germs belong to the intermediates of the typhocolon series, the type "A" being nearer the bacillus of Eberth, while type "B" approaches the meat-poisoning group.

Antityphoid serum will clump the paratyphoid "B" at the same time as the bacillus typhosus, sometimes even in

University of Pennsylvania Medical Bulletin, April, 1905.

higher dilutions, so that a positive reaction of a patient's serum to both bacillus typhosus and paratyphosus type "B" even if the latter be in higher dilutions, will not permit a diagnosis. On the other hand, only twelve times in 94 cases of typhoid fever did the serum react with type "A" paratyphoid, so that a positive reaction with type "A" and not with the bacillus typhosus may be taken as nearly a proof of the existence of an "A" paratyphoid infection.

It seems probable that there must be some other factor responsible for coagglutinations than an increase of the agglutinins normally present in the blood.

The best proof of the existence of a para infection is the isolation of the bacterium, the saturation test and the bacteriocidal action.

A NEGLECTED BRANCH OF MEDICAL TRAINING.

Amid numerous flourishing specialties, that of "good manners" has been sadly neglected. Yet a doctor's success, and that of medical organizations, is largely conditioned on the "manners of the individual."

Formerly the basis of membership in the American Medical Association was the "manners" taught by Percival in letters to his son just entering the medical profession. In a modified form they are still commended to the favorable consideration of physicians.

While some sort of manners have been a necessity to physicians in their intercourse with colleagues and patients, there has been no exhaustive study of the subject and so no universal standard. In most communities the most forceful physician set "the pace." Something of homogeneiety has followed the increasing practice of frequent commingling of physicians in large associations. But this is still imperfect, as he learns who moves from one city or state to another.

Professional manners have three distinct relations, first to other doctors; second, to the community, and third to the patients of doctors. The young doctor comes into the community as a teacher of individual and community health, and all that relates thereto—as such he is apart from others and on a different intellectual plane—a fact which gives distinctive color to his manners.

No conscientious physician escapes great perplexity, in many relationships thrust upon him by novel situations, and when too late sometimes regrets the course adopted. Not a few have met a Waterloo because ignorant of good manners. Others have failed to make a favorable impression on fellow doctors, on the community, or even their own patients—so drifting to personal ruin, and professional disgrace.

In large degree professional bad manners, arise from defective college training. Few colleges make any pretence of training their students in "good professional manners;" many provide teachers with offensively bad manners, so that the wonder is that so many graduates acquire "good manners."

Medical colleges should provide teachers with model good manners, so that students might absorb them by daily contact. More than is generally believed the teacher's manners are wrought into the texture of the student's life.

Second, the college should provide an adequate course of instruction, the teacher of each separate sort of practice, combin-

ing his own studies, with those of his predecessors, so making an "up-to-date" course.

Third, the college should require a final examination on "good manners" ere conferring the degree of doctor of medicine. State Medical Examining Boards could materially assist in this propaganda, by requiring of applicants for a State license, an intelligent knowledge of "good manners."

Lastly, medical societies would do well to promote this part of "medical sociology," as their efficiency and very existence are intimately allied to the reign of "good manners" over each member of the medical profession.

A CONGRESS ON QUACKERY.

Quackery has always existed but never flourished more luxuriantly than at the present time. One form no sooner languishes than a dozen sprouts arise, each more noxious than the parent stem. No country is free from its ravages, no people escape its infection. One form appeals to the ignorant, another to the refined and cultivated. Its scientific study has never been undertaken, though it would seem as worthy a subject for investigation as the "great White Plague."

From the *St. Louis Medical Review* we learn that a Congress on Quackery opened in Paris May 8th. Its program gives twenty-five subjects for discussion thus: "Illegal practice of medicine by bone-setters, sorcerers and empirics magnetizers and clairvoyants. Facts as to illegal practice of medicine by lay people, or clerics under pretense of charity. Illegal practice of medicine by members of the societies for the aid of sick and wounded; by nurses, manicures, pedicures, barbers, hairdressers, pharmacists, herbalists, bandagistes, opticians, electricians, dentists, foreign doctors, medical students, sanitary officers, massotherapeutists, etc., etc.; doctors who overstep the privileges confered by law by covering shady enterprises with their diplomas; the part played by the lay press in the matter of illegal medical practice; medical pharmaceutical advertising by persons who do not possess a medical diploma; illegal and charlatanic practice of medicine by advertising; how the public should be warned as to the danger of illegal practice; social causes of illegal medical practice; critical examination of medical practice law; action of medical syndicates; creation of a central office for the repression of illegal medical practice."

These topics cover a wide field, but in the United States many other things need considering. We have all the infections of the profession here given and more.

We have devoted much energy to the searching out and repression of infections undermining the health and prosperity of the laity, as shown in organized Health Boards, sanitary movements, etc., etc., heating, lighting, ventilation, school building and all arrangements by which healthy men and women may emerge from the state schools. All this is well, but this Congress on Quackery suggests the query, have we done all we could to free the medical profession from the infections which sap its strength?

Have we ever made any systematic exhaustive study of these infections with the object of reducing their number and limiting their ravages. Occasionally an individual has published a brief study of a single infection that had forced itself upon his attention, but it does not appear that

any great move was started that materially diminished its blighting force.

The questions involved may all be classed as medical sociology—an undeveloped branch of medicine. It is suggested that medical organizations, small and great, arrange to study the field belonging to each, and provide means for enforcing their findings, to the end that wholesome, healthful activities replace the noisome pestilence of quackery.

County Society News.

GENESEE COUNTY.

The Genesee County Medical Society held its regular meeting April 25, 1905, at Flint. At the request of the State Nurses' Association, the Bill pending in the Legislature, being an Act to Provide for the Examination, Regulation, Licensing and Registration of Nurses, was unanimously adopted.

J. R. G. Manwaring read a paper on "Flat Foot."

Abstract:

Often overlooked in diagnosis and called by other names as "Rheumatism," "Neuritis," "Neuralgia," or some form of "Arthritis."

Anatomy of Foot.—One long arch, the longitudinal, and one shorter, the transverse or anterior. In walking the foot tends to flatten, get broader, lengthen, and to rotate outward as in valgus. This is prevented by the shape and relations of the bones, fibrous structures, and strong muscles. If any of these are diseased or impaired then trouble begins in the foot.

Etiology.—Indirect causes are wrong habits of walking or standing, improper footgear, occupations requiring much standing, and weak neurotic tendencies in the individual. Direct causes may be or may not be found, but usually the symptoms date back to some traumatism of the foot or leg, a preceding inflammation of the parts, rapid increase in weight as in middle aged women, prolonged illness, often typhoid fever or complicated pregnancy. It may accompany paralysis of the leg.

Symptoms.—Pain is the first noticed. It may be anywhere in the foot or even in the leg, knee, or hip. Aching and cramping of the muscles are frequent from overwork. Tenderness about the arches and under the metatarsal heads if the transverse arch is involved as in "Morton's Disease," comes. Sensitiveness along the nerves also occurs. Swelling either simple or inflammatory is found sometimes. Limitation of the joints results from the inflammation. Atrophy of leg muscles is not unusual. Alterations in the gait are noticed. The arch may have changed but little or may be broken to any degree. When the anterior arch gives way the foot is broader and there is a callous under the front where the central groove should be. Imprints of the foot may show nothing.

Course.—In mild cases where only a temporary deficiency has occurred, recovery may be complete. Those with more chronic conditions rest and change in occupation may relieve. If not treated they may get worse until almost complete disability arises or the enforced rest may keep the disease at a tolerable stage.

Treatment.—In mild cases, massage, applications of heat or cold, adhesive strapping, bandaging, or temporary pads in the shoe may be all that is necessary. If not then a plate properly adjusted for support of the breaking arch is necessary. Best made over a plaster model of the sole corrected somewhat. This should be worn until tolerance is established. If active inflammation is present then plaster dressings are to be used until this all subsides and then a plate can be fitted.

Results of Treatment.—About one-third recover entirely from the symptoms, about one-eighth have no relief, and the rest are more or less improved. If the patients would carry out the instructions always the results would be better. (*Blodgett.*)

H. R. Niles, Sec'y.

INGHAM COUNTY.

The Ingham County Medical Society met in Leslie at the residence of F. L. Seger, May 17, 1905. Most of the physicians were accompanied by their wives. At noon an elaborate buffet luncheon was served by Mrs. Seger.

The following resolution was adopted:

"Resolved, That copies of all articles appearing in the daily press in this county relating to members of this society shall be placed in a scrap book which shall be kept on the secretary's desk for the inspection of members. All articles appearing between meetings of this society shall be read at each meeting, and any members whose names shall appear therein will have the privilege of attaching thereto a written explanation."

L. Anna Ballard, Sec'y.

WASHTENAW COUNTY.

The annual meeting of the Washtenaw County Medical Society was held yesterday and was one of the most profitable meetings ever held in the history of the society. It was marked by the presence of a representative gathering of the Jackson County Medical Society and many of the visitors were accompanied by their wives and lady friends. The business session was held in the morning and at this time officers were elected as follows: President, J. A. Wessinger; Vice-President, Roger S. Morris; Secretary-Treasurer, John William Keating; Board of Directors, Conrad George, Sr., Ellen B. Murray, Ypsilanti, F. H. Smith, Willis, Geo. E. Sanford, Saline, A. G. Mesic, Milan.

In the afternoon a clinical session was held and was attended by the ladies. From 1:30 to 3 o'clock, Dr. Dock conducted a medical clinic and from 3 to 5 a gynecological clinic was held by Dr. Peterson.

The following physicians were elected to membership: E. E. Butterfield, J. W. Vaughan, Catherine Crawford, Ann Arbor; Charles Woodbridge, Saline; Chas. F. Kapp, Manchester.

J. W. KEATING, Sec'y.

Medical News.

In June, 1904, Jan Bakker, administrator of the estate of Steven Bakker, deceased, brought an action against Doctors D. Emmet Welsh and Ralph C. Apted, in the Superior Court of Grand Rapids, to recover damages. Their cause of action was stated in two counts.

The first count in their declaration, in substance, was Steven Bakker, deceased, was of the age of seventeen years, and lived and resided with his father, Jan Bakker, and the father received the benefit of the services and earnings of the said Steven Bakker, deceased. That on the 24th day of February, 1904, the defendants, without the knowledge or consent of the father, undertook to remove a tumor from the ear of the said Steven Bakker, and to effect such removal the defendants administered chloroform in such quantity, and in such manner as to fully overpower and cause the immediate death of the said Steven Bakker.

The second count in the declaration averred that, without the consent of the father, the defendants took the deceased Steven into the operating room of Butterworth Hospital, and administered chloroform to the deceased in a careless and negligent manner, without the exercise of due care and caution, and in an everwhelming quantity, and in such negligent manner, and in such excessive ad unreasonable quantity as to fully overpower and forthwith cause the death of the said Steven Bakker.

Both counts averred that the patient was in perfect health.

The case was tried on the 19th, 20th, and 22nd days of May, 1905, by the Judge of the Superior Court, who instructed the jury that the plaintiff was not entitled to recover under either count. The following is the charge of the Court:

THE COURT: Gentlemen, from the investigation I have given this case I have determined not to submit it to the jury, and I will state briefly my reasons for that action: When a case is brought in Court the plaintiff states his cause of action through his attorneys in what is known as the declaration, and this declaration contains what is known as two counts.

In the first count of the declaration the injury complained of is that this young man was a minor and that it was known to the defendant Welsh that he was a minor and that it was his duty to inform his parents before entering upon this operation of that fact and get their consent before so entering upon this operation.

The second count charges what is known as malpractice or the want of skill in the operation and that he died by reason of an improper administration of an anæsthetic.

These issues are met on the part of the defendant by the pleadings, in this case called a plea, and that makes the issues in the case which go to the jury for trial. If there is no conflict in the testimony it simply depends on whether the claim made by the plaintiff and admitted in the evidence makes out a case in law.

After listening to the testimony in this case in regard to the second count the Court had no difficulty in determining that there could be no recovery on the second count; it appears to the Court in this case that there was no malpractice, no want of skill exercised and nothing left undone that modern skill and science could provide, but it was one of those unfortunate circumstances that will occur notwithstanding all the precautions that may be taken; but on the other count the Court has been very much in doubt, and there has been no decision brought to the attention of the Court that gives any assistance, as to whether it was absolutely necessary that the consent of the parents should be obtained before entering on this operation, but in a careful examination of the pleadings and the law so far as I have been able

to make it, the Court is satisfied that a cause of action cannot be based in a case of this kind entirely upon a want of consent; the want of consent of the parent is not the moving cause of injury, the operation itself is the cause, and therefore taking the testimony to be true throughout the case introduced on the part of the plaintiff by every witness, it has seemed to me that the law does not give a cause of action, and therefore with that view of it there is nothing to submit to the jury and I shall be obliged to instruct you to render a verdict of no cause of action, which will be recorded by the clerk without your retiring.

The thirteenth annual meeting of the Arizona Medical Association was held at Prescott, June 1-2, 1905.

The Association of American Physicians elected the following officers at Washington, May 17, 1905: President, Frank Billings, of Chicago; Vice-President, F. Kennicutt, of New York; Secretary, Henry Hun, of Albany; Recorder, Solomon Solis-Cohen, of Philadelphia; Treasurer, J. P. Crozer Griffith, of Philadelphia, and Councilor, T. Mitchell Prudden, of New York.

The claim for $100,000 for medical services by L. C. H. Ziegler, of Chicago, against the estate of Harriet McVicker, widow of the theatrical manager, was disallowed by Judge C. S. Cutting, of the Probate Court, who held that the claim was excessive and instructed Dr. Zeigler to submit a modified bill.

Recently a woman died in St. Louis, Mo., the cause of death being described as bronchitis and pulmonary hemorrhage. The body was embalmed and shipped to Indianapolis for burial. Advices from Indianapolis state that the undertaker who took charge of the body there became infected with hemorrhagic smallpox and that a number of people who attended the funeral have developed smallpox. The undertaker who embalmed the body in St. Louis has since developed hemorrhagic smallpox from which he died. The local Board of Health called the attending physician to account, but he claims that there were no signs of smallpox in the case. The women who dressed the body state there was no eruption on it, but the Board at Indianapolis claims the body showed signs of hemorrhagic smallpox when it was exhumed.

Miscellaneous.

CHANGE IN MEMBERSHIP.

May 15th to June 10th.)

NEW MEMBERS.

D. K. Andrews, Mancelona, Mich.
G. F. Baugh, Lansing, Mich.
C. H. Brucker, Lansing, Mich.
C. D. Chapin, Columbiaville, Mich.
H. B. Clark, Mancelona, Mich.
J. B. Dodge, St. Johns, Mich.
F. C. Dunn, St. Johns, Mich.
R. J. Dunn, Port Huron, Mich.
J. A. Ferguson, Rudyard, Mich.
V. F. Huntley, Manton, Mich.
A. Jeffries, St. Johns, Mich.
D. H. Macpherson, Fowler, Mich.
A. H. Miller, Sault Ste. Marie, Mich.
H. B. Mills, Grand Rapids, Mich.
J. H. Mosley, Mancelona, Mich.
A. T. Parrish, Ovid, Mich.
C. B. Porter, Elsie, Mich.
L. P. Redner, Norway, Mich.
J. J. Roach, Bennington, Mich.
A. Schwartz, Norway, Mich.
W. A. Scott, St. Johns, Mich.
R. J. Shank, Lansing, Mich.
C. E. Spencer, Port Huron, Mich.
E. P. Swift, Norway, Mich.
A. G. Wright, Fenton, Mich.

CHANGE OF ADDRESS.

G. W. Beeman, Traverse City, Mich.
W. D. McHugh, Ontonagon, Mich.
F. A. Waples, Cody, Wyo.

BOOKS RECEIVED.

SURGICAL DIAGNOSIS. By Otto G. T. Kiliani, M. D. Wm. Wood & Co., New York, 1905.

PRACTICAL PROBLEMS OF DIET AND NUTRITION. By Max Einhorn, M. D. Wm. Wood & Co., New York, 1905.

CLINICAL TREATISES ON THE PATHOLOGY AND THERAPY OF DISORDERS OF METABOLISM AND NUTRITION. By Prof. Dr. Carl von Noorden. Translated by Broadman Reed, M. D. Vol. VI. Drink Restriction (Thirst Cures), Particularly in Obesity. E. B. Treat & Co., New York City, 1905.

Book Notices.

Under the Charge of

RAY CONNOR.

INTERNATIONAL CLINICS. Vol. I. Fifteenth Series. 312 pages. 27 illustrations. Cloth, $2.00 net. J. B. Lippincott Co., Philadelphia and London, 1905.

The present volume contains, in addition to the reguar sections on Treatment, Medicine, Surgery, Neurology and Obstetrics, a review of the Progress of Medicine, 1904. This necessitates somewhat briefer sections, and those on Treatment and Obstetrics are comparatively short. In the section on Surgery, Archibald Young contributes an interesting account of the Treatment of Severe Burns, involving extensive areas of skin by means of Wolfian grafts. He has nothing new to bring forth, but has so modified the technique as to permit of greater rapidity in the preparation and planting of the grafts. In contrast to the Thiersch method, these grafts nearly always take. Robt. Dawbarn gives a clinical lecture on the Starvation of Malignant Growths by Depriving Them of Blood Supply, a procedure which, while not usually curative, still gives the surgeon one additional means of combatting a dreaded foe. In the section on Neurology a case of cerebellar tumor is reported by J. Walter Carr and the impossibility of an accurate localizing diagnosis pointed out.

Dr. Stevens reviews the year's work on treatment briefly and comprehensively. Medicine is covered by Drs. Edsall and Stanton. J. C. Bloodgood considers the advances in surgery. According to his opinion, the most important experimental investigations having practical surgery value during 1904 are those of Sauerbruch and Brauer on the Surgery of the Thorax. Sauerbruch's original apparatus for opening the thoracic cavity is pictured, as well as his later model. A diagram is also given of the pneumatic operating-chamber in the surgical clinic at Breslau. Both these investigators are agreed that maintaining a lower pressure around the lungs is preferable to raising the pressure in the trachea. Mikulicz has already operated nine times in this chamber, although the details are not as yet published.

The volume is well illustrated and quite up to the standard of these well known and valuable publications.

THE OPEN-AIR TREATMENT OF PULMONARY TUBERCULOSIS. By F. W. Burton-Fanning, M. D. Cantat. Pages 176. Illustrated. Cloth, $1.50 net. W. T. Keener & Co., Chicago, 1905.

This attractive little book approaches the subject in a very practical way. The effort is made to separate the essential from the non-essential things in the care of these cases. The importance of a proper selection of the case is urgently insisted on not only for the good of the individual, but also for the credit of the methods employed. Open air, methodical rest and the proper use of exercise and food are the chief agents to combat the white plague. These must be scientifically employed and continuously used. The persistence in treatment is perhaps the most important of all.

Thus the chief use of Sanatoria is as a kindergarten to start the cases in the right road and get them into proper habits which can be continued at home. Life-long care is the price the patient must pay for continued existence. The book is well written and amply repays the trouble of perusal.

DISEASES OF THE HEART: A CLINICAL TEXT-BOOK FOR THE USE OF STUDENTS AND PRACTITIONERS OF MEDICINE. By Edmund Henry Colbeck, B. A., M. D. 350 pages, with 43 illustrations. Second Edition. Cloth, $2.50 net. W. T. Keener & Co., Chicago, 1905.

The practical little book approaches the all-important subject of heart disease from the clinical side and avoids as much as possible controversial matter. The book is dedicated by its author to his teacher, Sir William H. Broadbent, who has done so much to advance the clinical study of diseases of the heart. Brief chapters are given over to a consideration of the anatomy and physiology and a more extended one to methods of diagnosis. The various diseases of the heart are then taken up concisely and systematically, beginning with congenital affections, pericarditis, acute and chronic endocarditis. The different valvular lesions are taken up in individual chapters and a full discussion of diseases of the myocardium is given. A chapter on the functional disorders of the heart closes the book. The type is good, and numerous diagrams and illustrations serve to add to the clearness of the text.

A HAND-BOOK OF NURSING. Revised Edition, for Hospital and general use. Published under the direction of the Connecticut Training School for Nurses. Cloth. 318 pages. Illustrated. J. B. Lippincott Co., Philadelphia and London, 1905.

The edition of 1878 has been changed and enlarged to meet the requirements of present day nursing. Part I. considers Medical and Surgical Nursing not only in the Hospital but in the Home, and much of value is contained in these chapters. This of course takes up the bulk of the work, but two shorter sections are given up to Directions for Monthly Nursing and Family Hygiene and Emergencies. Many forms of treatment are well illustrated from photographs, and the book is serviceable not only to those who have had a good course in the training school but for those who are trying to do the work with less advantageous training. The book is nicely gotten up, and can be recommended to those who have to do with the care of the sick.

Progress of Medical Science.

MEDICINE.

Under the Charge of

HARRISON D. JENKS.

Atypical Forms of Pneumonia.—Pneumonia is applied to two essentially dissimilar conditions, broncho-pneumonia and croupous pneumonia. It frequently happens that one form bears a more or less superficial resemblance to the other, or that the conditions may resemble superficially both forms. The failure to recognize that these two forms are essentially distinct has been the cause of improper therapeutic conclusions, and has rendered the statistics of croupous pneumonia as to morbidity and mortality entirely worthless. We must, then, before the subject can be clear, differentiate the forms by the proper adjectives bronchial and croupous. By this grouping many of the commonly regarded atypical forms will fall properly into the broncho-pneumonia type; such for example as acute pneumonic phthisis, syphlitic pneumonia, many of the tuberculous, inhalation or deglutition pneumonias, postoperative and anesthesia, hypostatic, and influenzal pneumonias, the pneumonias of acute infections.

This leaves, then, the remaining great group of croupous pneumonias, the most important of the acute infections of the present period. The typical forms of this disease are easily recognized, but there is a class which is not so easily recognized and can be regarded as atypical.

1. Pneumonia in infants. Located more commonly in the upper lobes, introduced by a convulsion. Cerebral symptoms, especially torpor, retraction of the neck muscles, occasional excitement with muscular twitchings suggest meningitis. Cough is often absent.

2. Pneumonia in the aged. Develops insidiously and without a chill; cough and expectoration slight, and signs obscure. Marked tendency toward pulmonary oedema. Constitutional signs out of proportion to the physical signs.

3. Pneumonia in the alcoholic. Often overlooked because masked by the delirium tremens. Slow onset and absence of fever; pain in side, cough and expectoration, and even dyspnoea may be absent altogether. In the habitual consumer of alcohol in large amounts who does not present signs of intoxication the disease is more like the typical form except there is a tendency to cardiac failure, septic condition and a profound asthenia. Prognosis in both forms highly unfavorable.

4. Toxic, or "typhoid" pneumonia. This is a pneumococcus septicaema with secondary infection. Constitutional signs are severe, but physical signs in the lung slight. Profound asthenia, ataxic symptoms, wandering delirium with jaundice and gastro-intestinal symptoms. Often no diagnosis is made during life.

5. Epidemic pneumonia. Multiple cases of croupous pneumonia occurring in prisons, garrisons and at times in private houses, showing either typical or atypical forms. Death rate is high.

6. Larval pneumonia. Undeveloped forms of pneumonia are occasionally found. Two classes are common, (a) characteristic onset, fairly high temperature, evidence of local exudate, cough and rusty sputum, terminating by crisis in 2 or 3 days. So-called abortive form; (b) sickness slight, chilliness, moderate fever, unsatisfactory physical signs. Diagnosis almost impossible.

The atypical forms may be divided according to the pulmonary lesions as follows:

1. Upper lobe or apex pneumonia. Common in infants and children, also in later life. Marked cerebral symptoms and often overlooked.

2. Pneumonia migrans. Rare. One lobe after another is seat of exudate. Prolonged course. Termination by lysis.

3. Central pneumonia. Onset likely to be characteristic. Signs not definite until several days of illness.

4. Terminal pneumonia. Croupous pneumonia is often the terminal event in chronic diseases, especially phthisis, diabetes and disease of the spinal cord. Condition often latent because neither constitutional nor local signs indicate its presence. Detected often only on post-mortem table.

5. Pneumonia in pulmonary emphysema. Constitutional symptoms are well marked. Rusty sputum is absent. Consolidation is not detected because of the emphysema. Pain is absent.

6. Haemorrhagic pneumonia. The chill is followed by more or less abundant expectoration of blood. This lasts for several days and gradually diminishes. Otherwise disease is characteristic.

The diagnosis of these atypical forms is difficult in proportion as they depart from the type. In the extreme form terminal pneumonia, diagnosis is often clinically practicable. Herpes occurs in half of the cases of pneumonia and is of diagnostic importance.—(J. C. WILSON, *New York Medical Journal,* April 22, 1905.)

NEUROLOGY.

Under the Charge of

GUY L. CONNOR.

The Cause of Acromegaly.—The following theories have been advanced to explain the symtom-complex of this condition:

1. Nervous theory (Magendi and von Recklinghausen). The disease is supposed to be dependent upon changes in the nervous system.

2. Theory of growth anomaly (Atavistic—Freund and Campbell). Acromegaly is not to be regarded as a disease proper, but as an anomaly of growth, the whole appearance suggests a reversion to the anthropoid ape type.

3. Thymus theory (Klebs). This theory suggests that an increase in the vascular canals of a large and persistent thymus is the etiological factor.

4. Genital theory. Acromegaly is accompanied in the majority of females by an early menopause and in males by impotence; hence the assumption that by the loss of function of the organs of generation an excess of blood is diverted to the extremities, resulting in their hypertrophy.

5. Thyroid theory. Diseased conditions of the thyroid gland, which is occasionally found in acromegaly, are regarded as the causative factor.

6. Enlargement of the hypophysis theory. This is not acceptable because in a few cases the enlargement is not found.

7. Diseased condition of the hypophysis theory. This theory has been unsatisfactory because an extirpation of this organ does not cause a state of acromegaly and because this organ can be markedly diseased from syphilitic or other chronic inflammations of the granulomatous type and acromegaly does not result.

8. Benda's theory. Acromegaly is probably produced by a hypertrophy and hyperplasia of the chromphile cells of the anterior lobe of the hypophysis, indicating an excessive activity of that gland. Lewis thinks that Benda's theory is the correct one. His views are based on a microscopic examination of a case of his own, and also on the examination of the material from several other cases.

Lewis's case of acromegaly is noteworthy in that:

1. It came to autopsy at an unusually early stage of acromegaly, the usual clinical course of a benign or chronic case having been interrupted by death due to cerebral embolism and secondary hemorrhage.

2. The hypophysis appeared normal upon gross examination, but microscopic examination revealed a hyperplasia, especially of the chromophile cells, which is confirmatory of the theory that acromegaly is caused by an excessive functioning of the glandular elements of the anterior lobe of the hypophysis.—(D. D. LEWIS, *Bulletin of The Johns Hopkins Hospital,* May, 1905.)

Mind-Blindness.—The optic nerve passes backward from the retina (fibres from the nasal visual field crossing over through the optic chiasma and fibres from the temporal field passing backward without crossing) and encircles the crus cerebri, entering the geniculate bodies, anterior corpus quadrigeminum, and the optic thalmus. From these ganglionic bodies fibres then pass outward and backward and finally reach the apical occipital cortex and seem to have their maximum field in the neighborhood of the calcarine fissure on the mesial surface of the lobe. Higher visual coordinating combining centers no doubt exist and are probably located in the angular gyri of the parietal lobes (Nervous and Mental Diseases, Church and Peterson).

Holden reports a case of mind-blindness where no lesion was found of the retinae, optic nerves, optic radiations or mesial surface of the occipital lobes. There was, however, present in the outer cortex of each cerebral hemisphere, including on each side the angular and supramarginal gyri, marked areas of softing. There are doubtless several forms of mind-blindness. In the common form the patient unquestionably sees but does not recognize what he sees. That is, perception takes place probably in the lower cortical visual center about the calcarine fissure, but there is a destruction or cutting off of the higher centers of visual apperception which lie presumably in and about the angular gyri. With this form of mind-blindness there are as a rule hemianopsia, defects in the visual fields, frequently aphasia and astereognosis. Holden's case was unable to count fingers and his eyes did not follow a light. Nevertheless he seemed to be visually aware of the persence of persons in the room. At first glance he impressed one as blind, yet his behavior differed from that of patients in the same ward blind of optic atrophy.—(E. A. HOLDEN, *The American Journal of the Medical Sciences,* May, 1905.)

SURGERY.

Under the Charge of

MAX BALLIN.

Spinal Anesthesia by Means of Stovain.—Sonnenburg was one of the first to try stovain, the new local anesthetic, discovered by Fourneau of Paris. Stovain has a similar chemical composition to cocaine and eucain. The anesthetic action of stovain is somewhat less than that of cocaine (in equal doses). As stovain is less toxic, it can be given in larger doses than cocaine. Stovain dilates the blood vessels, retards the pulse and contracts the pupil. Injection of fatal doses in animals causes a fall of temperature (opposite of cocaine).

Sonneburg has used stovain 60 times for spinal anesthesia, without every seeing any alarming symptoms, during or after the anesthesia, and believes that stovain is superior to cocaine and eucain. The technic of injection in the spine is the same as that employed with cocaine. Dose is 0.04-0.07 grain. Anesthesia occurs inside of 2-10 minutes—5 minutes is the average.

The anesthesia lasts from 30 minutes to 3 hours. After effects, backache, stomach-ache, thirst and nausea were slightly and exceptionally complained of. In one case, 10 days after the injection of stovain, in an operation for a large peri-appendiceal abscess, fatal purulent spinal-meningitis supervened. Post-mortem autopsy showed several other abscesses in the abdominal cavity, besides the meningeal affection. It is doubtful if the stovain injection was any causative factor in producing the meningitis. In 60 cases of stovain, spinal-anesthesia, 11 times the anesthesia was not sufficient, but the author refers this to faulty technic. Operations performed under this anesthetic include all kinds of operations on the lower extremities. Operations for hemorrhoids, castration, appendectomy, herniotomy, gastro-enterostomy, etc.—(E. SONNENBURG, *Deutsche Medicinische Wochenschrift* No. 9, 1905.)

Experiences from One Thousand Operations for Appendicitis.—Kimmell draws the following conclusions for the treatment of appendicitis.

1. Every well-defined case of appendicitis should be operated upon immediately. The earlier the operation is performed, the more favorable the prognosis.

2. Cases coming under our care later than 48 hours after onset of the disease should be treated conservatively by application of ice, opium, etc., unless very serious symptoms require immediate operation. Physics are to be strictly avoided.

3. Abscesses are to be opened as soon as recognized, simultaneous removal of the appendix is not always advisable. If the appendix has been left, it should be removed after the abscess wound has healed.

4. Every patient who had an attack of appendicitis should be protected against return of the disease by removal of the appendix. Appendectomy is also indicated in the chronic form of appendicitis.—(HERMAN KIMMELL, *Deutsche Medinische Wochenschrift,* No. 16 and 17, 1905.)

Chronic Suppuration on Finger with Deposition of Carbonate of Lime.—The author observed two cases, both in women, one 40, the other 57 years old. They were characterized by formations of white, hard deposits in the subcutaneous tissue of the fingers. From time to time these deposits were discharged by means of formations of small abscesses. The deposits were shown to consist of carbonate and phosphate of lime. The pus of the abscess was sterile. Radiography showed such deposits on all fingers and in the first case a large deposit was also found in the middle of the forearm. The disease existed for 12 years in one case, and proceeded under exacerbations when abscesses formed. A similar observation was made by Wildbolz on the fingers and toes of a woman 57 years old. It seems that such cases as the above have been seen before by others, but the concretions were falsely considered to be goutic (urates.)—(THEODOR DUNIN, *Mitteilungen aus der Grenzgebieten der Medicin and Chirurgie,* Vol. XIV., Part IV., 1905.)

Encephalo Meningocele.—W. D. Haggard discusses the malformations of the brain and its coverings, of which he says the three chief varieties are encephalocele, meningocele and hydrencephalocele. His own case was an example of meningocele containing cerebral tissue. At birth a tumor as large as a goose egg was observed on the back of the head. This grew until, when the child was seen by the author, at the age of four months, it measured seventeen inches by twenty-three, and weighed five pounds after removal, the weight of the child being six pounds. The child reacted well after the operation, but died unexpectedly on the ninth day. The temperature had not been above 100 for the four days preceding, and for two days previously the only conspicuous symptom was a lateral nystagmus.—(*Medical Record,* June 10, 1905.)

GYNECOLOGY AND OBSTETRICS

Under the charge of

B. R. SCHENCK.

The Methods of Inducing Labor.—Hirst contributes a timely article on the methods of inducing labor, making his deductions from a series of 217 patients, whom he has operated upon. Of these, labor was induced by bougies alone in 174 cases. The time required is noted in 138 and in 81 per cent., the child was born in less than 36 hours from the time the bougies were introduced. Labor was induced by bags alone in 23 instances and the delivery was accomplished in less than 36 hours in 83 per cent.

In selecting the method to be employed, the physician considers the patient and secondarily himself. For the patient, he desires the method which will cause the minimum of discomfort and risk; for himself, that which will give the least trouble and take the least time. The bougie method, in the author's experience, best meets these requirements.

The technic is as follows: Bougies, size 17, French, are sterilized by soaking in a 1-1,000 solution of sublimate. After thoroughly cleansing the vagina, sterilizing the hands and putting on rubber gloves, the bougies are rinsed in sterile water, anointed with sterilized vaselin and inserted into the uterus. Before they are put in, one or two fingers should be inserted through the cervical canal and swept around the lower uterine segment, to separate the membranes. A small tampon of iodoform gauze is placed in the vagina, after the bougies are inserted. No pain has been caused and in the large majority of the cases, labor soon intervenes and progresses easily and naturally.

The difficulties and embarrassments of the bag method are contrasted.

Recently, Hirst modifies the above method but only in cases when there are no labor pains after 24 hours. If this be the case, the patient is anaesthetized and the cervix dilated to 6 or 7 cm., by means of a Bossi dilator. Up to this point there is no danger of injuring the cervix. A forceps is then applied and the child extracted, the whole operation requiring about 35 minutes. Prejudice against Bossi's instrument, usually exhibited by those who have had no experience with it, is without reason. After 25 cases, the author highly recommends its use, stating that with a slow dilation, not exceeding 6 or 7 cm., taking 20 or more minutes, there is not much more danger of lacerated cervix than in the average labor. (*Am. Med.*, May 6, 1905.)

Operative Sterilization of the Female.—Küstner of Breslau reports two interesting cases, showing the impossibility of absolutely preventing conception by a partial resection of the tubes. The patients refused laparotomy and further pregnancies were contraindicated. He therefore opened through the cul-de-sac, resected 2 or 3 cm. of both tubes and sutured the openings into the uterus. Within a year, both of the patients returned in the second or third month of pregnancy. Küstner concludes that in order to make absolute the impossibility of conception, it is necessary to resect the entire tube and close the uterine ostia by means of a carefully sutured plastic covering. (*Monatsch. f. Geb. u. Gyn.*, xxi, N. 3.)

Cholecystitis in the Puerperium.—Christiani states that reports of gall bladder inflammation during the puerperium are rare, due, as he believes, to the difficulty of diagnosticating such cases. Two instances are described in detail and emphasis laid on the fact that not invariably is a pyrexia after labor, the result of puerperal infection, as it may result from infection in the appendix or in the gall passages. Both should be eliminated in making the diagnosis of puerperal fever. As a general rule, operative intervention should be resorted to earlier under such conditions than in the ordinary case, for an involvement of the liver is more dangerous during and immediately after pregnancy than under normal conditions, while the gravid and puerperal states do not render the operation more dangerous.

Both the author's cases were diagnosticated by the frequent vomiting of bile, the slight peritoneal irritation and the slow, full pulse. (*Ibid.* No. 1.)

Pruritis Vulvae.—The following is strongly recommended by the *Buffalo Medical Journal* in vulvar pruritis:

℞ Acidi Borici .....dr. ii
Acidi Carbol. liq.....dr. i.
Morphinæ Muriatis .....gr. i.
Lanolini .....oz. ii.

M. Ft. unguentum. Sig.: Apply locally.

DERMATOLOGY, SYPHILIS AND CUTANEOUS RADIOTHERAPY.

Under the Charge of

A. P. BIDDLE.

The Present Status of Roentgen Ray Therapy.—R. H. Boggs says that much experience is necessary in applying the X-rays in order to get the therapeutic effect, as the various mechanical guides to the dosage are not always reliable. The use of the fluoroscope involves a good deal of risk to the operator even if but infrequently employed, while it is really practically useless except for the purpose of testing tubes and making minor examinations and gives such untrustworthy results that it should be discarded. Sufficient evidence has accumulated to give the X-rays a place in the treatment of all forms of tuberculosis. While a large number of skin diseases are benefited by the application of the rays it is advisable to treat only the most obstinate in this manner, as trivial affections can be relieved by other measures with less expense to the patient. The author concludes by saying: (1) That the wide difference of opinion as to the value of the rays is largely due to the manner in which they are applied. (2) That if the best interests of our patients are to be considered, the rays must be given a place as a therapeutic agent. (3) That injury to the operators from the rays during the past two years has been due to thoughtlessness or lack of familiarity with what is going on in the X-ray world. (4) That in applying the rays it is essential to know the quality as well as the quantity of the rays absorbed, and that this must be varied to suit each individual case. (5) That unless the operator has had a wide experience in the treatment of carcinoma, he should always consult a surgeon in each case, as it is certainly by the combination of surgery and X-ray that the best results are to be obtained.—(*Medical Record,* May 6, 1905.)

X-Ray Treatment of Cancer.—The microscopic changes in the tissue, says E. G. Williams of Richmond, Va., should be our guide as to the therapeutic possibilities in the X-ray treatment of malignant growths. It is evident, he states, that the elements of the tissues are affected according to their vitality. Dead organic matter is unaffected, and the more active the growth the greater the effect. Next to this is the accessibility of the tissues to the rays. Hence the better results with superficial or skin cancers. That moderately deep tissues can be affected is shown by experience, and the way to reach them without producing necrosis of overlying tissues is to lengthen the distance of the tube and the time of exposure. For deep growths, radical surgical measures should be recommended, as the patient should be given the benefit of the probability rather than the possibility of good results. In such cases, however, operation might be rationally followed by X-ray treatment to destroy what may remain of the malignant growth. Inoperable cases should be treated by the X-ray because remarkable results have been obtained and the most distressing symptom of pain relieved.—(*Journal A. M. A.,* May 6.)

Protection from Roentgen-Ray Injuries.—C. L. Leonard, Philadelphia, calls attention to the serious risk that X-ray operators undergo, especially if they follow the practice advised of testing the qualities of the rays on their hands with the fluorescent screen. The only practical method is to limit their radiated field by covering the Crookes tube. For this purpose he uses a pasteboard box a little wider than the diameter of the tube and covered with X-ray lead foil a little heavier than the ordinary tea lead. This extends two inches below the bottom of the box, and can be adjusted so as to limit the field to any extent required. It is not necessary to cover the anode end, and the box is held on a bracket over the portion of the body to be treated; if a very small field is required, a local shield may also be employed. He thinks possibly some effects are due to the strong induction field surrounding the coil which, especially in large hospitals, should be kept in another room, but with the controlling apparatus within the operator's reach. For the dermatitis of the operator's hands, he advises twice daily soaking in very warm water and scrubbing with Eichhoff's superfatted resorcin soap, followed by inunction of lanolin containing half an ounce of boric acid and a dram of resorcin to the ounce. For the acute erythema of X-ray treatment, he employs a stearate of zinc powder with 10 per cent. ichthyol, which he thinks acts as a prophylactic against severe burns. This should not be confused with stearate of zinc ointment, which may do harm.—(*Journal A. M. A.,* May 6.)

Erysipelas with an Excessive Production of Fibrin.—R. Floyd's patient was a coachman, 38 years old, who, in addition to the usual lesions of erysipelas, exhibited an exudate of fibrin so excessive and so disposed as to constitute a croupous inflammation presenting the same essential characters as a croupous colitis or a croupous inflammation of the throat. The man presented symptoms of an ordinary erysipelas of the hand and forearm, until, on the seventh day, vesicles began to form. These became confluent bullæ, extending over the dorsum of the hand and the lower half of the forearm. On removing their epidermal covering, a layer of fibrinous false membrane, varying in thickness from 3/8 inch to 1/8 inch and less, was revealed. On the thirteenth day the erysipelas was practically over, though convalescence was retarded by the slow healing of an ulcer on the back of the hand and wrist.—(*Medical Record,* April 22, 1905.)

THERAPEUTICS AND PHARMACOLOGY.

Under the Charge of

W. J. WILSON, JR.

The Limitations of the Value of Nitro-glycerin as a Therapeutic Agent.—Conclusions—1. The usual dose of nitroglycerin (1-100th grain) is too small to produce any effect in pathological conditions.

2. It is a perfectly safe drug to use. Even in the large and repeated doses used I have never seen any ill-effects.

3. High arterial tension in man is not perceptibly affected by it, nor is dilatation of the blood vessels apparent.

4. Its effects are very transient, as shown by the experiments on dogs, and the ordinary doses of 1-100 grain every four hours could not possibly have any effect on the arteries.

5. Nitroglycerin is said to increase the quantity of urine in chronic Bright's disease, but after keeping accurate records of the daily amount of urine passed, I was never able to satisfy myself that any increase was due to the use of this drug.

6. I believe that in conditions due to arterial spasms called, such as angina pactoris, migraine and asthma, nitroglycerin may be of benefit, in full doses often repeated, but not in arterial sclerosis, when the arteries themselves are more or less changed.

Before closing I would like to mention a drug which in my experience has given the most satisfactory results, in relaxing the arteries and diminishing blood pressure in arterial sclerosis. I refer to chloral hydrate, given in five-grain doses every four hours, night and day. The effects are extraordinarily uniform. The sphygmomanometer will generally show a marked fall of pressure in twenty-four hours, and the distressing symptom of headache will generally be controlled. At the New York Hospital during my service and as well that of my colleagues, Dr. Peabody and Dr. Lambert, nitroglycerin has been entirely discarded in arterial sclerosis and chloral hydrate has taken its place.—(LOOMIS, *Medical Record*, March 18, 1905.)

Tolerance to Nitroglycerin.—In my experience, too readily acquired tolerance to nitroglycerin is not rare, the difficulty being to so carefully and intelligently regulate its administration that, while maintaining a constant slight effort on blood pressure, the increase in dose is as gradual as possible. In my case, in which 20 minims of pure nitroglycerin were taken daily, the patient had not been encouraged to increase the dose beyond an amount sufficient to produce more than a slight physiologic effect—a trifling fullness in the head. Yet, despite admonition as to care in gradual increase the patient, knowing the nature of his ailment, and believing that great curative power must reside in a drug the name of which suggests so much, and the effects of which on the vascular system were so promptly and powerfully exerted, apparently advanced the dose more rapidly than necessity demanded. Noting this, the drug was several times, at a few weeks intervals, temporarily discontinued, a much smaller amount being directed to be taken on resuming it than that last used; the increase was also to be very gradual. Notwithstanding this, doses of 50 minims of a 10 per cent. solution four times daily were soon reached and continuously taken without the occurrence of any headache whatever, with but slight transient flushing of the face, and no very marked effect on arterial tension, as shown by the sphygmograph. A dose of 5 grains of pure nitroglycerin (in alcoholic solution) was administered by me before Professor Da Costa and the class in the clinic, so that there could be no mistake as to the amount.

As I prescribe nitroglycerin frequently, I often encounter cases in which I believe similar inconvenient doses could soon be reached with a little systemic effect as in the cases just narrated, were a too rapid increase in the dosage to be permitted. When it is desired to employ this drug for a considerable period for its effects on blood pressure, the best rule of administration, in my opinion, is to so proportion the dose that the intervals are comparatively short—never less than four times daily. The amount, though sufficient to produce some subjective or objective effect, should never be more than just necessary to cause the slightest feeling of fullness in the head or to slightly quicken the pulse. If enough is always taken to produce a more marked immediate result, such as flushing and slight headache, tolerance is soon acquired and a quantity may be early reached altogether impracticable of administration.—(STEWART, *Journal A. M. A.*, May 27, 1905.)

BACTERIOLOGY AND PATHOLOGY.

Under the charge of

H. S. OLNEY.

Actinomycosis.—Wright comments on the contradictory reports which have been made as to the biology of the microörganism of actinomycosis, and especially condemns the tendency of some writers to class with actinomycosis other suppurative processes, such as psuedo-tuberculosis, streptothrix or cladothrix infections. He claims that every case of true actinomycosis will show the characteristic granules or "drusen" which are made up of dense masses of branching filaments and their transformation products. By transformation products he means the radially arranged club shaped bodies at the periphery of the granule. It is rather difficult to isolate the organism in pure culture, owing to the fact that bacteria become so intimately enmeshed in the dense granules that cultures are almost invariably contaminated, but he describes a special technic which is ordinarily successful. He has worked with microörganisms isolated in pure cultures from 13 cases in man and 2 in cattle, and regards them all of one species.

It grows well only in agar and bouillon and in the incubator, and for this reason he thinks that its usual habitat is not outside the body, but that it is a normal inhabitant of the secretions of the buccal cavity and of the gastro-intestinal tract, both of animals and man. He believes that the function of the clubs (that is, the hyaline envelope surrounding the peripheral filament) is to protect the mass of the colony from any destructive action of the cells and juices of the tissue, as they are only formed when there is resistance on the part of the tissue toward the microörganism.—(*Journal of Medical Research,* May, 1905.)

Aneurism and Anteriosclerosis.—Camac has investigated very thoroughly the relationship between aneurism and arteriosclerosis, and the effect of syphilis on arterial disease. Some of his conclusion follows: Arterial disease appears to be rare, almost unknown, in animals. Syphilis being probably peculiar to man is by this observation placed more firmly in the list of etiological factors. Arterial disease in children under 6 years of age, even in those who are victims of congenital syphilis, is practically unknown. In those from 6 to 15 years it is rare. It is found in the initial stage most commonly between the ages of 30 and 40. Arterial disease seems to be attributable to syphilis in about 32 per cent. of the cases, and to tuberculosis in about 16 per cent. The facts presented go to show that the colored race is affected about four times more frequently than the white. General arteriosclerosis seems to be not commonly found with aneurism, and its presence may be considered as evidence against the probable development of aneurism.

Staining with selective stains and treating with a chemical which digests the tissue shows the elastic tissue to be free of histologic alterations, suggesting that this tissue undergoes molecular or physical rather than histological changes.—(*Amer. Jour. Med. Sciences,* May, 1905.)

Splenic Anemia.—There has been for some time much diversity of opinion among various writers as to what constitutes splenic anemia and as to what cases should be classed under this heading. O'Malley discusses the subject very thoroughly and reports a case which is fairly typical and the diagnosis of which is confirmed by microscopical examination. In his case the spleen extended downward to the crest of the ilium and inward to a finger's breadth beyond the navel. The examination of the blood showed red blood cells, 3,000,000; hemoglobin, 80 per cent.; white cells, 14,000.

Differential count:

Polymorphounclears	57.5
Small lymphocytes	28.5
Large lymphocytes	6.5
Eosinophiles	0.5
Myelocytes	1.5
Basophiles	1.0
Large mononuclears	4.10

A splenectomy was done in this case, but the patient died one week after operation. The spleen weighed 945 G. Microscopically it showed connective tissue hyperplasia throughout the organ. Splenic substance was transformed by this thickening and a marked proliferation of the endothelium was seen. All blood vessels and sinuses had thickened walls from the endothelial proliferation, and these cells were so packed into the sinuses as to fill them completely throughout most of the spleen. Many Malpighian bodies were recognizable, but were enlarged three or four times by the endothelial proliferation and were irregular in outline. Giant cells with nuclei grouped centrally and peripherally were noted. No tubercle bacilli could be found.—(*Am. Jour. Med. Sciences,* June, 1905.)